Recreational Boating Safety in Washington:

A Report on Methods to Achieve Safer Boating Practices

Washington State Parks
and Recreation Commission
Boating Programs

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Parks and Recreation Commission

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Executive Summary

Implementation of SB 5898

Recreational Boating Safety Mandatory Education Study

Report to the Legislature

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State of Washington

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Recreational Boating Safety Accidents and Fatalities in Washington

Issue Statement

The number of recreational boating accidents and fatalities in Washington over the past 15 years has averaged 150 accidents, 67 serious injuries and 30 fatalities each year. Some veteran boaters say Washington's waterways are becoming more congested with inexperienced – even unsafe – boating enthusiasts. Based on an analysis of accidents and fatalities, the boating safety council and staff recommend mandatory boating safety education for some boaters.

Background Information

Since 1985, Washington State has been administering a recreational boating safety program approved by the U.S. Coast Guard. It includes boating accident reporting, safety education, enforcement of boating laws, boat registration, and placement and maintenance of aids to Navigation. The Legislature directed State Parks to administer the boating safety education portion of the program.

By the state administering the boating safety program, the emphasis was put on local boating safety issues. This, along with the continued efforts of the U.S. C. G. Auxiliary and the U.S. Power Squadrons, and other boaters groups that focused on safety education helped lower accidents and fatalities. By comparison, the period from 1975 thru 1984 had Washington averaging 163 accidents and 34 fatalities per year. From 1985 thru 2001, the state averaged 150 accidents and 30 fatalities per year.

While improvements have been made, boaters are becoming more concerned with increasing use of the resource which causes congestion. Long time boaters are also concerned with boaters who apparently do not understand basic right of way conventions and who seem to pay no attention, and have no courtesy for, other boaters.

SB 5898, passed during the 2003 legislative session, directed State Parks to review recreational boating safety accidents and suggest ways in which accidents, fatalities, and near misses could be further reduced. The bill also directed State Parks to consider mandatory boater education and the recognition of the need for homeland security precautions for boaters.

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Boating Safety Council Review

To implement SB 5898, the State Parks Boating Safety Advisory Council and staff met four times between June and August, 2003 to review statistical and anecdotal information on recreational boating accidents. Information was taken from accidents reported to State Parks by county and city marine enforcement agencies and from U.S. Coast Guard annual statistical reports.

Data on boat accidents and fatalities in Washington, from 1985 to 2001, gave significant information on accidents and fatalities by type of boat, cause of accident, activities of boaters when in an accident, operator age, boat length, operator experience, operator safety education, use of personal flotation devices by boaters in accidents, types of water bodies where accidents occur, types of injuries which occurred in accidents, and other facets of boating accidents. Eighty-eight percent of accidents occurred in motor-powered boats. Fifty-six percent of fatalities occurred in motor-powered boats.

The data also shows that boating accidents involve human behavior which may be changed through education. For example, forty percent of all accidents are caused by boat operators who lack the experience or knowledge of watching for other boats or recognizing potential danger situations. Other accidents are caused by the operator not knowing how to distribute a load properly in a small boat, operating in a careless manner, and using alcohol or drugs when boating. All of these issues are addressed in the national education standards for boating safety education.

Council members discussed current federal, state, local agency, and private organizations efforts to make the public aware of boating safety issues. Washington state parks boating program has annual campaigns targeted at various boating groups, including provision of home-study course, publications on boating safety and radio announcements used to increase awareness of safety. This has been a successful program which has helped reduce accidents and fatalities for the past sixteen years. State Parks, the U.S. Coast Guard, CG Auxiliary and other boater groups have in the past participated in the National Safe Boating Week in May of each year.

The local U.S. Power and Sail Squadrons, U.S. Coast Guard Auxiliary, Sailing Foundation, and other local and regional boating organizations all provide safety training to their members with some classes being open to the public. Even with safety classes available, only 13% of boat operators in accidents reported that they had taken a formal safety class and less than 4 percent of fatal victims had taken a formal class.

Local law enforcement marine programs provide education through the use of boat safety checks and also patrol waters to enforce boating laws. Some schools have implemented boating safety classes as part of their curriculum. Other information is available on the internet. These efforts have been on going and have helped Washington prevent an increase in boating accident statistics. Meanwhile, other states have reduced their fatalities and the seriousness of accidents through mandatory boater education.

Homeland security is an issue boaters must become aware of in order to continue to enjoy recreational boating. Boaters need to be informed about and comply with new and changing regulations restricting recreational boats from coming close to certain federal state and local assets such as naval vessels, passenger vessels, tank ships, etc. Boaters should also know they should report suspicious persons conducting unusual activities near security areas, bridges, on or near the water.

After reviewing the information, the Council recommends that the next step to further reduce accidents and fatalities would be to mandate safety education for recreational boaters. Since the majority of accidents involved boats of 10 horsepower or greater, this is the group that would most benefit from safety training.

Executive Summary

Conclusion and Recommendations

Conclusion 1: The number of boating accidents and fatalities in Washington is too high and, following other states' examples it's possible to reduce the seriousness of accidents through boating safety education.

Recommendation: Continue the statewide boating safety education and information program targeting certain types of boating activities as analysis of accident report data suggests.

Conclusion 2: Mandatory boating safety education in other states has been shown to reduce serious accidents over time.

Recommendation: Make completing and passing a course on boat safety a requirement for most recreational boaters in Washington.

Recommendation: Recommend to legislature key elements of a mandatory boating safety education program.

Conclusion 3: Ninety-four percent of accidents and fatalities involving motor-driven boats have motors of 10 hp or more.

Recommendation: Make boating safety education mandatory for all operators of motor driven vessels of 10 hp or more.

Conclusion 4: Over forty percent of boating fatalities occur in non-powered boats. However, at this time, there is no national educational standard for manually powered craft.

Recommendation: Give canoeing and kayaking organizations up to six years to find ways of reducing fatalities among this segment of the boating public.

Recommendation: If at the end of six years no reduction in the fatality rate of manually powered boaters has occurred, recommend that this group of boaters also be required to take safety education classes.

Conclusion 5: Law enforcement visibility on the water contributes to safer boating practices.

Recommendation: Increase law enforcement presence on the water.

Recommendation: Seek method(s) to provide additional financial support for increased presence on the water.

Conclusion 6: Boaters have a role to play in supporting Homeland Security.

Recommendation: Ensure up-to-date information on Homeland Security is available to boaters through boating safety publications, media releases, etc.

These recommendations are intended to increase the certainty that recreational boating remains a safe and enjoyable pastime for the residents of Washington by reducing the number of fatalities where possible, decreasing the seriousness of accidents and improving cooperation on the water by various types of boaters.

Recreational Boating Safety in Washington

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Chapter 1 Introduction - The Issues

The waters of Washington State are a national and international resource. Recreationally and commercially, these waters contribute to the well-being of residents of the Pacific Northwest. Both the quality of life and the economic vitality of this region are highly dependent on each individual's perception of the potential for a positive and safe boating experience. To help maintain this valuable resource, it is essential that all users of these waters including recreational boaters recognize their role in keeping these waters safe and secure.

Recreational boaters come from all over the world to visit the San Juan Islands, Strait of Georgia, Puget Sound and the coastal and inland waters of Washington State. Tourists from Canada, Idaho, Montana, Alaska, California and Oregon visit annually to relax and enjoy themselves and leave refreshed. Marine environments and appropriate services are essential to these positive boating experiences. Washington boaters take to the water on their boats to fish, sea kayak, dive, cruise, harvest shellfish, boat camp, canoe, raft, hunt, water ski and enjoy the unparalleled majesty of these waters and unique boating experiences found here.

Recreational boaters are attracted to our waters by:

- 2,400 miles of saltwater shoreline, including the Pacific coast, San Juan Islands, and Puget Sound;
- 7,000 miles of navigable rivers, including the Columbia and Snake rivers;
- 8,000 lakes, both large and small, which cover 700,000 surface acres.

Eighty percent of recreational boats registered in Washington are registered in western Washington. These vessels range in size from large coastal cruisers and sailboats to smaller boats on trailers. Most boaters in Western Washington focus on cruising Puget Sound, whale watching, boat camping, or fishing. More and more of these boaters are becoming year round users of this resource.

Twenty percent of all registered boats in Washington are registered in Eastern Washington. Many of these are boats on trailers used on lakes and rivers during the primary boating season from May through September. However, there are also many active hunters and anglers who use the waters during the off-season times of October through April. Eastern Washington also provides many destination sites for Western Washington boaters who trailer their boats over the Cascade Range to popular recreational locations like Lake Chelan, Lake Roosevelt and the Columbia River.

State Boating Accidents and Mandatory Education

Washington experiences many boating accidents. From 1985 to 2002, 1,056 recreational boating accidents and 526 boating fatalities were reported to the U.S. Coast Guard. Since the U.S. Coast Guard estimates fewer than 10% of boating accidents are reported, the actual number of accidents in Washington for the same period could have been as high as 10,000.

Washington State boaters involved in accidents have generally not completed a boating safety education class. Washington State Parks Boating Program records indicate that for the period 1996 to 2002[1] , fewer than 13% of boat operators experiencing an accident actually completed a boating safety class or had any formal exposure to boating safety education, such as that provided by the U.S. Coast Guard Auxiliary, U.S. Power Squadrons, Red Cross, Washington State tests, or other courses. Boating Program records show, that for the same period, only 4% of the victims of boating fatalities had any exposure to boating safety education.

[1] Accident information for Washington from computerized records.

Growing Support for Mandatory Boater Education

In a 1987 report to the Washington State Parks & Recreation Commission (State Parks) based on a legislatively mandated boating safety study, one finding showed a serious concern by boaters about boat operators who are ignorant of safe boating practices, careless and inattentive to other boaters, and lacking in common courtesy. A follow-up survey of boaters conducted by State Parks staff in 1996 concluded that boaters overwhelmingly believed that public waters would be safer if all watercraft operators could receive watercraft safety education and that there should be a minimum legal age to operate a motor-powered watercraft.

In 1997, the Coast Guard proposed a federal rule that boat operators take a course in boating safety before being allowed to operate a boat. In response, and after reviewing over 30 years of state accident data, the National Association of Boating Law Administrators (NASBLA) went on record in support of mandatory boat operator certification.

In 1999, the Personal Watercraft Industry Association (PWIA) had a bill introduced in the legislature (SB 5393) that would have required operators of personal watercraft to take a course in boating safety education prior to operation. Although that bill did not pass either the 1999 or the 2000 legislative sessions, it began a dialogue at the legislative level about mandatory boat operator education in this state.

In the 2001 and 2002 legislative sessions, the Recreational Boating Association of Washington (RBAW) proposed legislation which would have resulted in requiring operators of motor boats to have passed a course of boating safety education.

In 2002, NW Marine Trade Association (NMTA) convened a meeting of interested organizations, agencies, and individuals to discuss the need for mandatory boat operator education. Participants at subsequent monthly meetings held through the summer of 2003 came from the boating industry, recreational boating clubs and associations, local marine law enforcement, state agencies and represented a broad spectrum of types of boating including power, sail, canoe, and kayak. At the conclusion of the first meetings, the group decided to call themselves the Washington Alliance for Mandatory Boater Education (WAMBE) to formalize its intent.

For the 2003 legislative session, RBAW proposed, and the legislature passed, SB 5898 directing State Parks and its Boating Safety Advisory Council (Council) to research and recommend ways to reduce recreational boating accidents, fatalities, and near misses including consideration of a program of mandatory boat operator education (see Appendix 1). WAMBE and the Council have worked closely together to contribute to the development of this report.

Boats and Cars are Not the Same

Operating a boat on water differs from operating a vehicle on land. There are no visible traffic lanes, boats don't have brakes, traffic or directional signs are different in shape color and content, a change of wind or current can make a simple trip more difficult. A boater who does not understand the differences is at risk of becoming a statistic. Actual on-the-water experience gives a boat operator the skills to boat more safely, however not all information an operator needs is skill-based.

Chapter 1 Introduction - The Issues

To be a safe boat operator there is a base of knowledge that a person needs. This includes knowledge of:

- rules of the road or right of way;
- navigation aids, which are the road signs on the water;
- required safety equipment;
- characteristics of types of boats;
- emergency procedures;
- appropriate speeds for water/weather conditions; and
- appropriate fueling procedures.

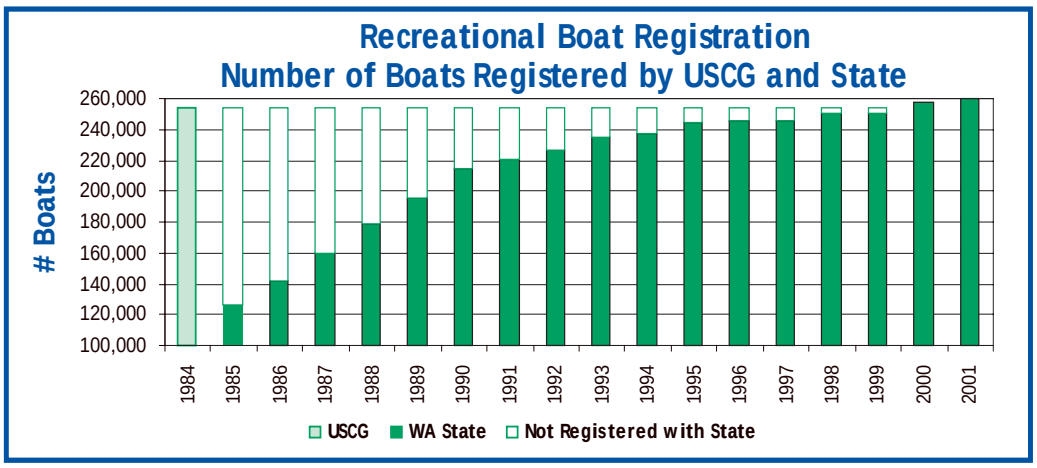

Kismet

Chapter 2 What the Data Shows

Recreational Boating Accident Data

The U.S. Coast Guard was responsible for registering recreational boats in Washington until 1984. Based on legislative direction, in 1985 the Department of Licensing implemented a program of mandatory boat registration and State Parks implemented a program of recreational boating safety education and accident reporting.

The U.S. Coast Guard statistics show that in 1984, 253,980 boats were registered. The state registration did not return to this level until 2000, as boaters gradually complied with the new state regulations.



Boats registered by the U.S. Coast Guard did not disappear; they just were not properly registered. In the late 1980's, there were very few local law enforcement agencies in the state that had active marine programs regularly patrolling the waterways and issuing citations to non-compliant boat owners. As additional funds became available for law enforcement [2], more marine programs became eligible to receive funding to help support on-the-water enforcement programs and more boaters came into compliance with the registration laws. The above graph shows the total number of boats in Washington, as of 1984, and carries this number over until actual state registration numbers caught up in 2000.

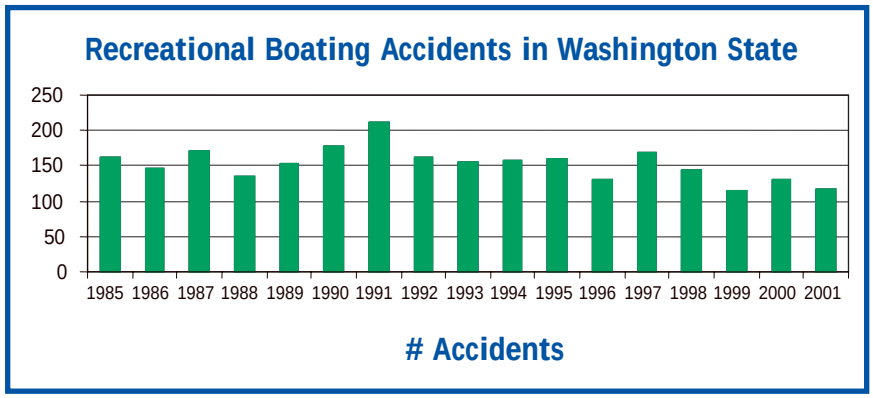
Boat operators involved in boating accidents must submit a boating accident report to the sheriff or police department that has jurisdiction in the county or city where the accident occurred as required by RCW 79A.60.210. Those accidents reports are then submitted to State Parks and the information passed on to the U.S. Coast Guard national database for research and analysis.

In 1996, the U.S. Coast Guard developed a national accident reporting system called BARD[3]. This database system allows states to store accident data electronically and to make better use of statistical materials. State Parks can now use this data to determine information about boating accidents which occur in our state.

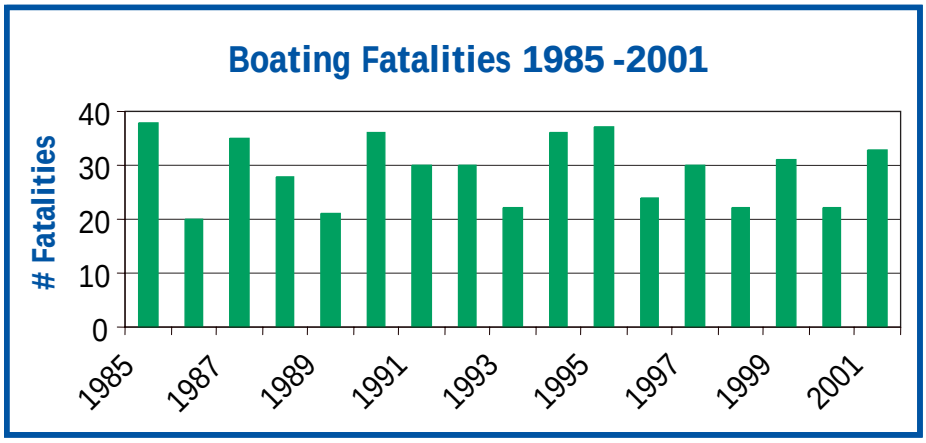
[2] In the 1989-01 state biennium, county and city marine programs began receiving some funding from vessel registration fees.
[3] **B**oating **A**ccident **R**eport **D**atabase. Information in this report is taken from BARD.

Recreational Boating Safety in Washington

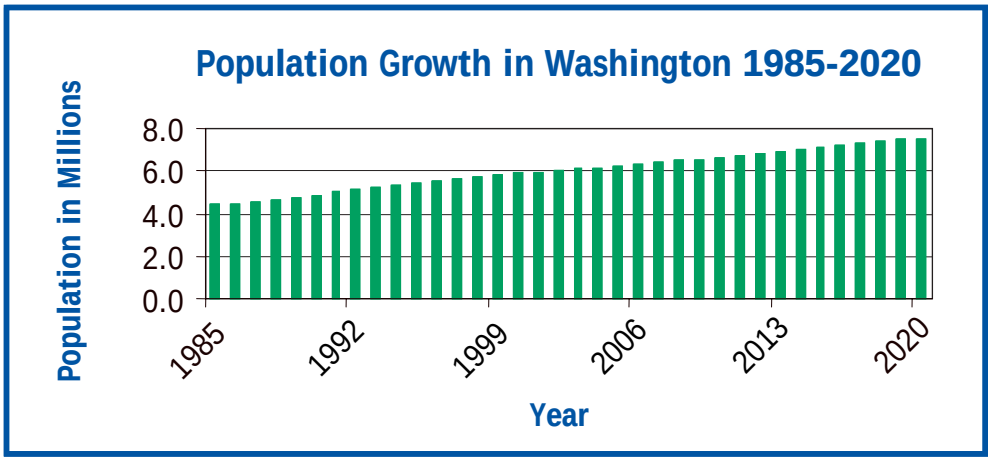
Between 1985 and 2001, there were 1,056 recreational boating accidents in Washington reported to the U.S. Coast Guard[4] .



There were 526 boating fatalities during the same period.



The population in Washington continues to grow at a gradual pace and is projected to continue growing[5] . Between 1985 and 2002 the population has increased 26%.

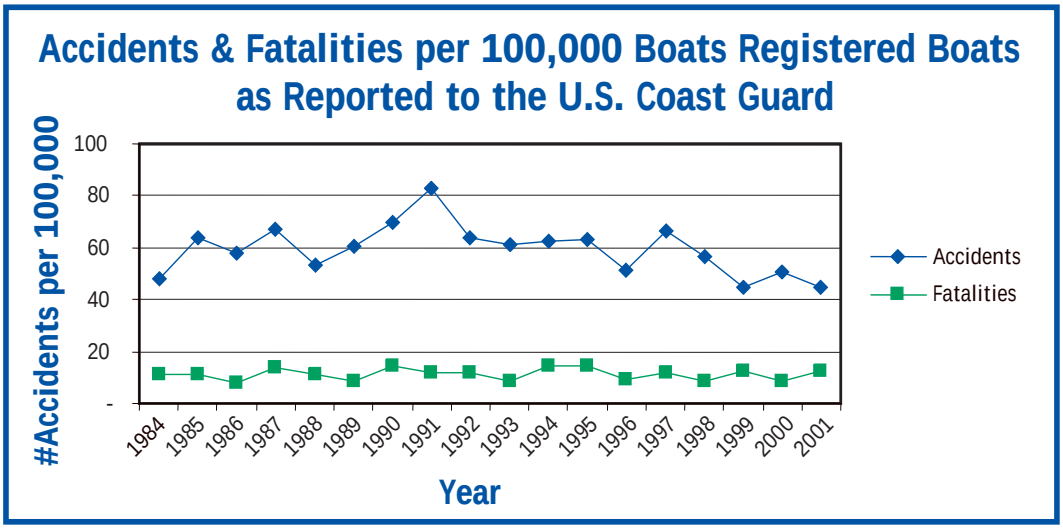


[4] Information taken from annual U.S. Coast Guard Statistic publication.
[5] Population information is taken from data at the Washington State Office of Financial Management.

Chapter 2 What the Data Shows

Accidents and Fatalities per 100,000 Registered Boats Remain About the Same

The number of accidents and fatalities varies each year. However, when boating accidents are examined, it becomes apparent that the accidents, per 100,000 registered boats, has not dropped appreciably since 1996. In fact, Washington state has an average of 30 fatalities a year or 10.7 per 100,000 registered boats.

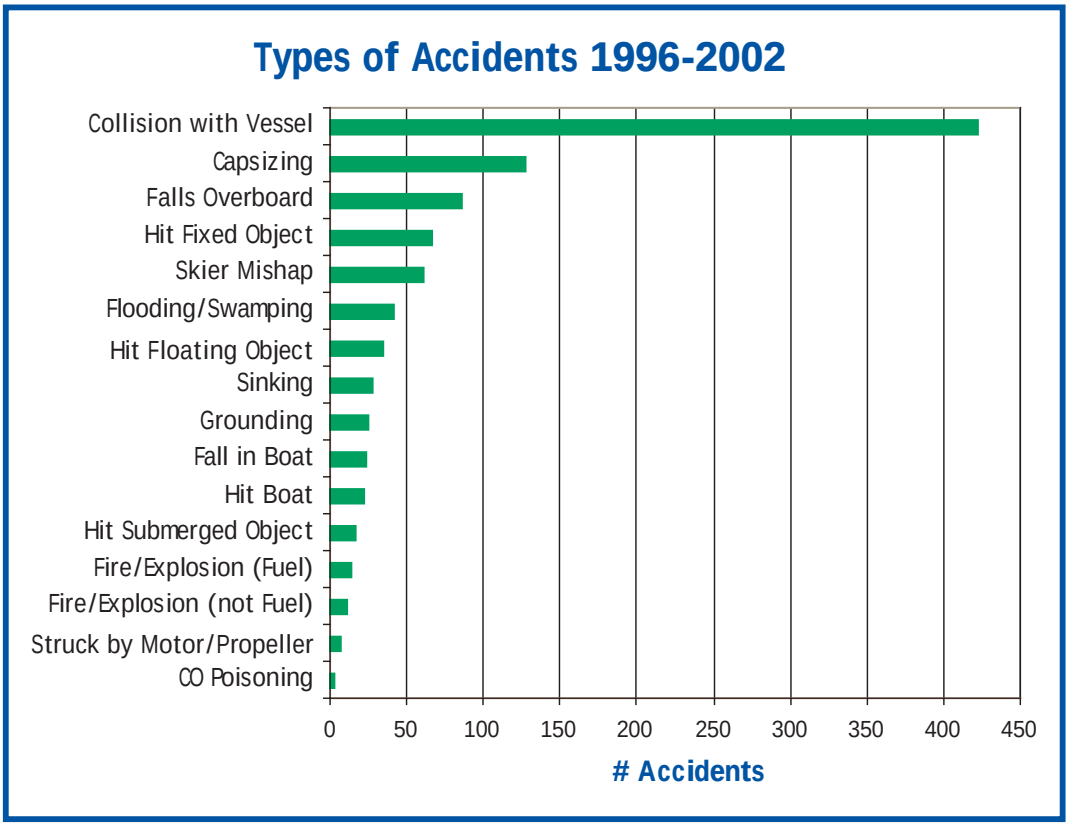


In 1989, the U.S. Coast Guard changed the reporting criteria from $200 per accident to $500 per accident. Again, in 2001, the reporting criteria went up from $500 to $2,000 per accident. The rationale being that the dollar cost of repairs has been significantly influenced by inflation. Washington has stayed at the $500 criteria primarily because most citizens underestimate the actual cost of repairs. Because of the U.S. Coast Guard changes, the number of accidents accepted as "reportable" falls below the actual number of accidents reported to State Parks each year.[6]

[6] The information for this graph came from the published U.S. Coast Guard statistics.

Collisions with Another Boat are the Most Common Type of Accident

Boating accident data help us to understand how the on-the-water behaviors of boat operators and passengers sometimes leads to unfortunate consequences. Looking at the types of accidents, we see that the most common type of accident is a collision with another boat. Sometimes this is caused by weather or water conditions that are difficult, but most often these accidents occur because the operator does not know the rules of the road or who has the right of way. In addition, the operator frequently is not paying attention to other boats around his/hers.

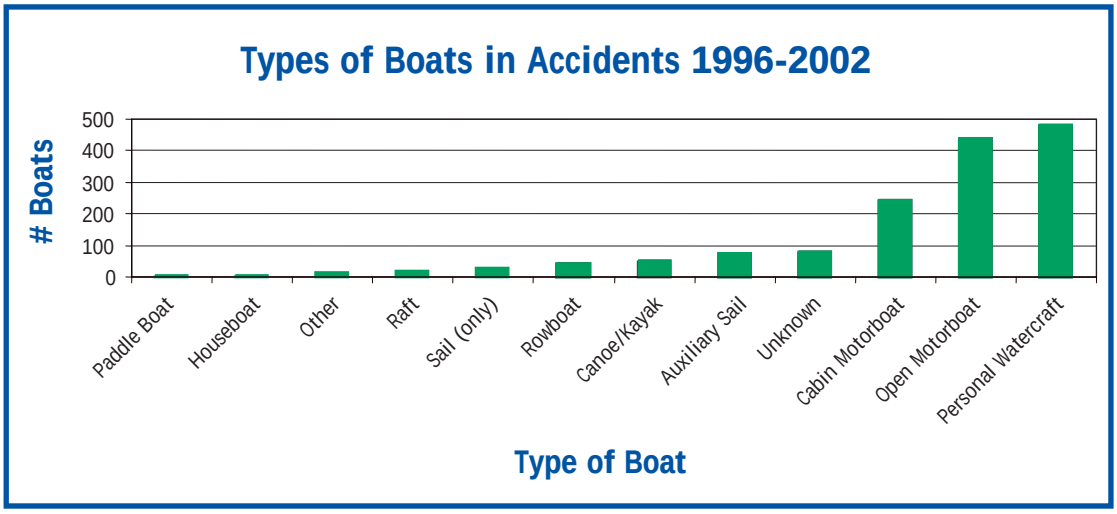


Some accidents may not be easily preventable, such as those caused by an unpredicted weather change, but many accidents could be less severe or become near misses if operators were knowledgeable about proper boating procedures.

Chapter 2 What the Data Shows

Motorboats and Personal Watercraft are Involved in Most Accidents

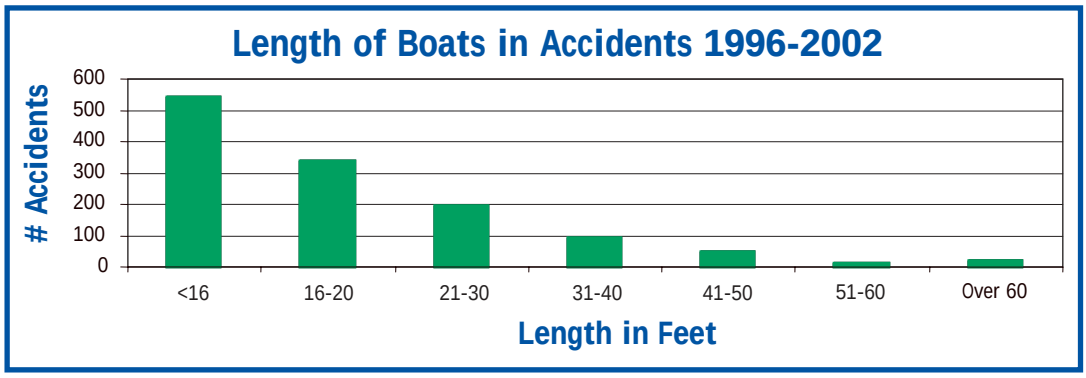
Different types of boats behave differently on the water. Larger boats, such as cabin motorboats and sailboats take more space to turn around, are harder to slow and stop because of their mass. Small boats, under 16 feet with flat or rounded bottoms, can tip over easily, so movement within the boat must be careful and deliberate. Until recently, when manufacturers made some design changes, personal watercraft (PWC) operators lost the ability to steer the craft when the motor was stopped. This inability to control the craft led to many collisions.



Open motorboat under 21 feet (includes personal watercraft) involved in most accidents

Most registered boats on the water today (80%) are less than 21 feet in length. Fifty-nine percent of the boats in accidents are less than 21 feet. Smaller boats are popular because they are less expensive to purchase and maintain. They are also flexible in their use – from fishing to water skiing.

When combining this data, it becomes apparent that the most common accident involves a personal watercraft or open motorboat under 21 feet in a collision with another boat.



Horsepower and Boat Length as Found in Boating Accidents Since 1996

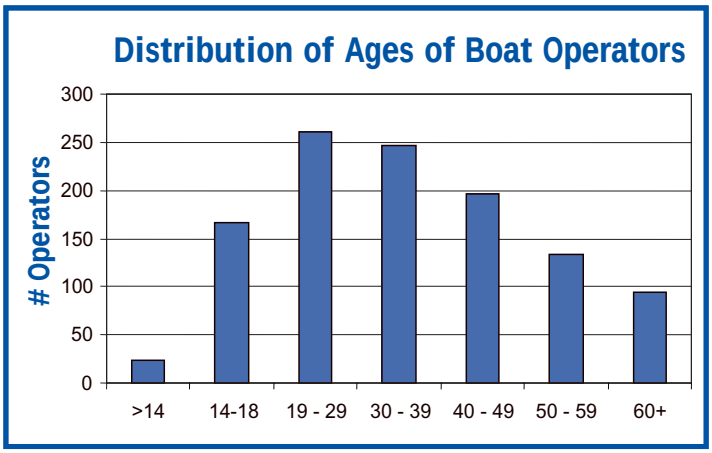
As the table below shows, the largest percent of accidents (87.3%) are in boats of 10 horsepower or greater. This table also shows that the largest percent of fatalities (69.1) were in non-motorized boats and boats of less than 10 horsepower.

Propulsion	Deaths	Injuries	# Boats	% Deaths	% Injuries
Under 10 HP	33	27	70	20.3	5.5
10 HP and Over	47	426	1043	29.0	87.3
Non-motorized	79	30	129	48.8	6.1
Sail only	3	5	19	1.9	1.0
Totals	162	488	1261	100.0	100.0

Table 1: Comparison of Deaths and Injuries in Boating Accidents by Type of Propulsion[7]

Age of Operators

The average age of a boat operator in an accident is 36.5 years. 98% of all operators in accidents are between the ages of 14 and 83. Many other states have chosen mandatory boater education as a way to reduce accidents and have targeted young boaters between the ages of 12 and 18. However, any strategy that will lower fatalities and severity of accidents really needs to target those boaters who are having accidents. Boaters, of at least fourteen years of age, fall into this category.



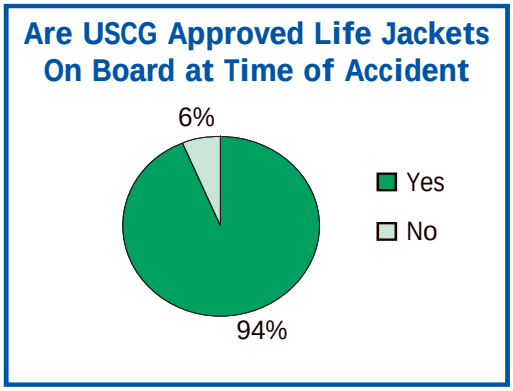
The only watercraft in Washington with an operator age requirement of fourteen years of age is personal watercraft. Of operators under fourteen involved in an accident, all but two were operating illegally on personal watercraft. One of the two was on a cabin motorboat and the other was on a manually powered rowboat.

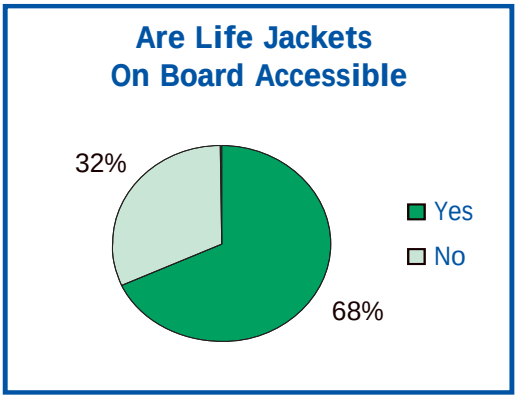
[7] This is for only those reports in which type of motor and horsepower were given, or the report noted it was a non-motorized boat.

Chapter 2 What the Data Shows

Do Boaters have Life Jackets On Board and Do They Wear Them?

Ninety-four percent of boaters in accidents report that they have USCG approved life jackets on board at the time of the accident. Sixty-eight percent of boat operators, in all types of accidents, say that their life jackets met the requirement and were accessible. Therefore, according to the information provided by boaters on the accident reports, 26% of the operators stated that, while the life jackets were on board, they were not readily available in case of an emergency.





Information derived from fatality reports indicate that the percentage of victims, wearing life jackets that died in boating accidents has decreased from 32.2% for the years 1996-1998 to 29.1% for the years 1999-2002.

Changes in Life Jacket Wear by Activity of Fatality Victims

	1996-1998			1999-2002		
Activity	Worn	Not Worn	% Worn	Worn	Not Worn	% Worn
Canoeing/Kayaking	2	2	50	3	5	37.5
Drifting/Floating/Rowing	1	2	33.3	1	1	50
Fishing	5	29	14.7	9	27	25
Hunting	1	0	100	0	2	0
Pleasure Boating & Sailing	3	5	37.5	6	25	19.4
Tow Sports	4	0	100	0	0	0
Whitewater Sports	3	2	60	6	1	85.7
Totals	19	40	32.2	25	61	29.1

Table #2

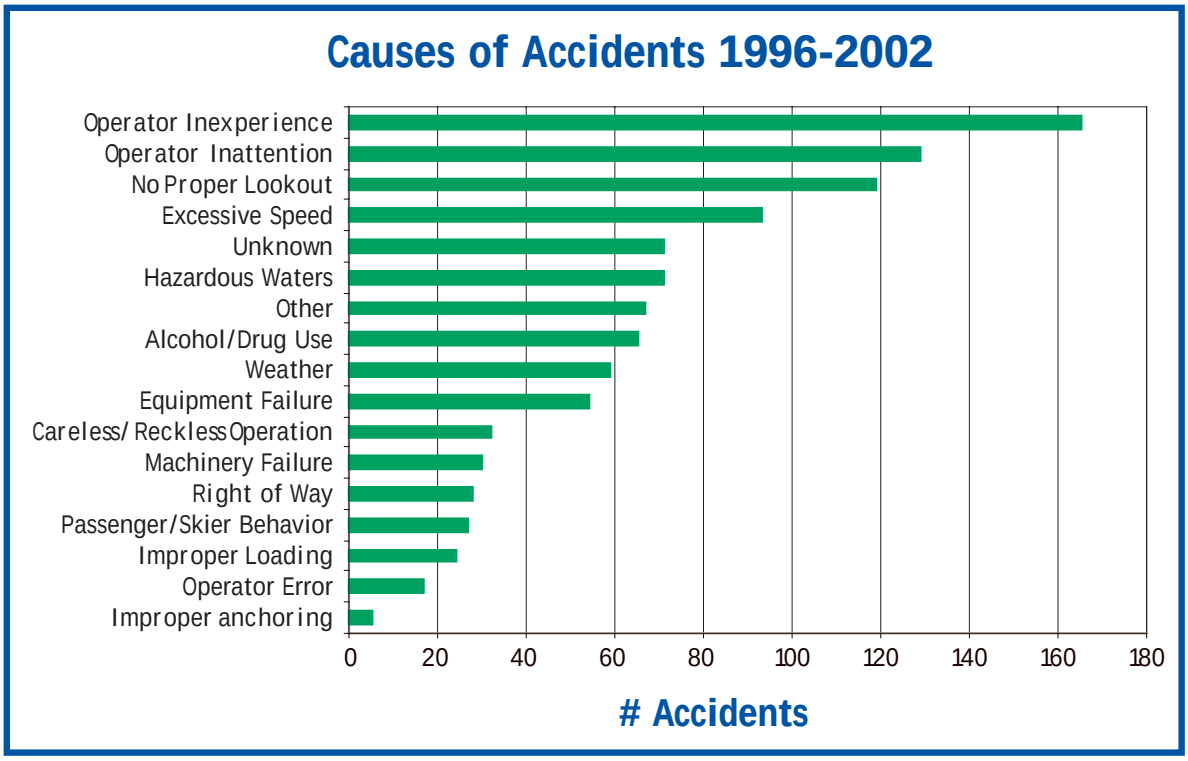
Overall, for this seven year period, 30% of the boating fatalities wore a life jacket. An on-going life jacket wear rate study[7] conducted by Children's Hospital and Regional Medical Center of Seattle found that 29% of boaters in this state were observed wearing life jackets. This is less than half of the number of boaters who report they were wearing their life jackets when submitting accident reports.

[8] Children's Hospital PFD Wear-rate Study, 2000

Most Accidents are Caused by Human Behavior Which Can be Changed

Most accidents involve human behavior which can be changed. These accidents are preventable. A few accidents each year are just that, accidents. The operator has done every thing within his or her power to be safe on the water. We will never be able to eliminate this type of accident. However, this is not true of all accidents. Operators who are not watching for other boats, not paying attention, or not recognizing potential danger situations because of lack of experience/knowledge cause 40% of all accidents. Another 9% are going too fast for water or traffic conditions. In decreasing percentages, the following behaviors are also found to cause boating accidents:

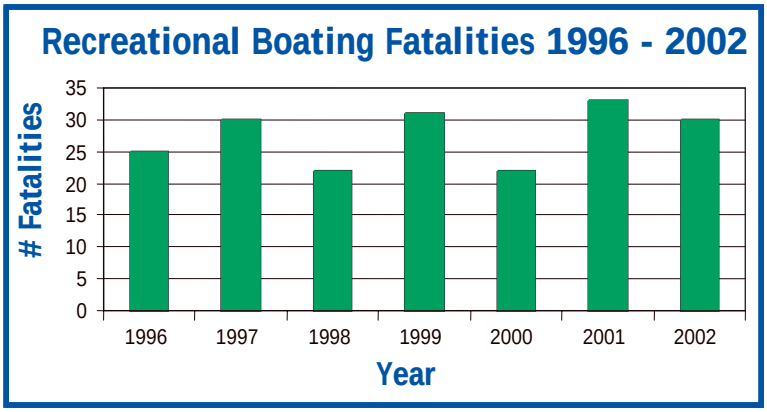
- alcohol and drugs;
- not knowing who has right of way;
- operating a boat in a careless or reckless manner;
- undertaking a boat activity in circumstances beyond their skill level; and
- not knowing how to properly distribute a load in a small boat, or anchoring improperly.



These behaviors can be modified and changed by making the operator aware of the possible consequences of overloading, speeding, using drugs and alcohol, and other acts on the water that lead to problems.

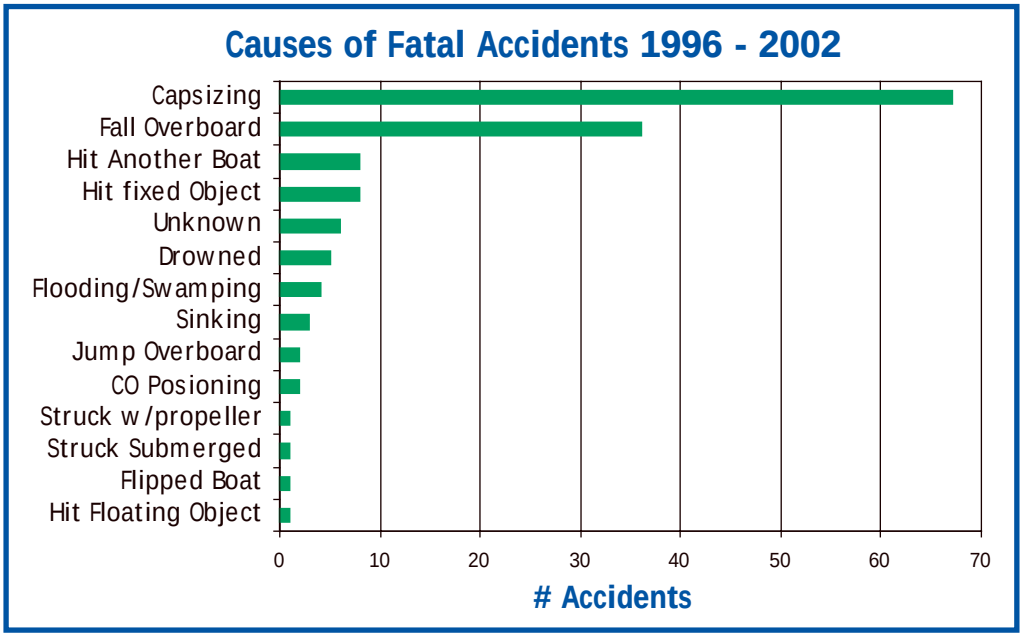
Chapter 2 What the Data Shows

Every year in Washington an average of 30 people lose their lives in recreational boating accidents. Boating fatalities tend to remain in the range of 21 – 33 annually. Most, but not all, of these deaths are preventable. Altogether there have been 193 fatalities in 145 accidents for the period of 1996-2002.



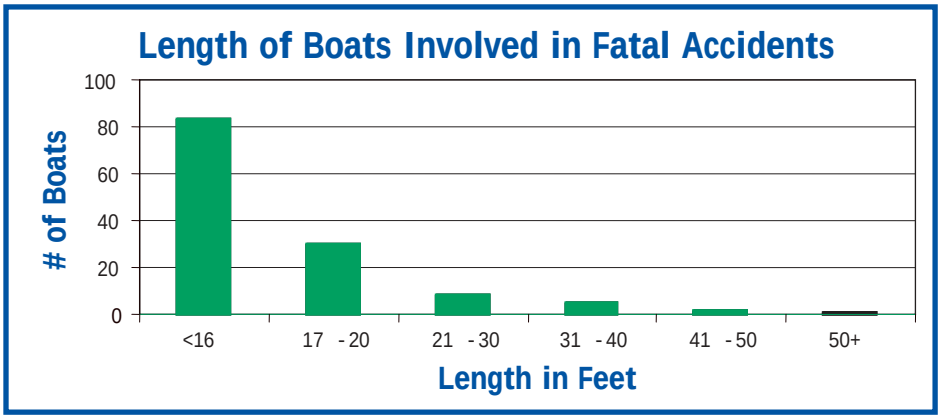
Most Fatal Accidents Involve Capsizing or Falls Overboard

Most times, both capsizing and falls overboard have occurred. Thus, it is difficult to say if the victim's boat capsized and the victim fell overboard, or falling overboard caused the capsizing. Seventy percent of fatalities come from one of these two causes.



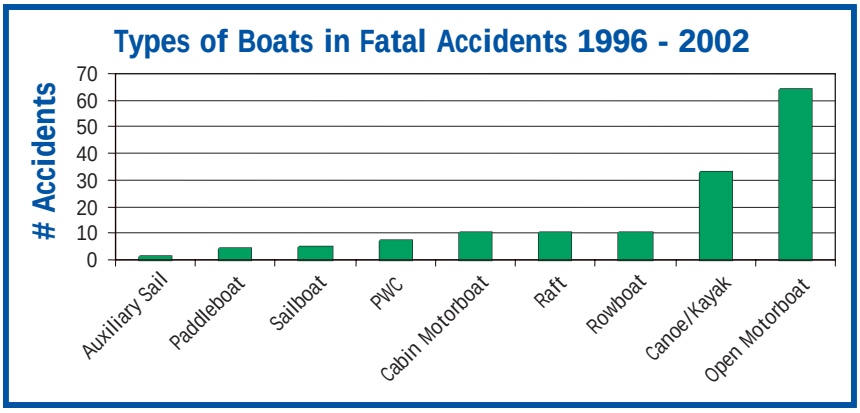
Like Accidents in General, Fatalities Occur Most Frequently in Boats Less than 21 feet

As in non-fatal accidents, the most frequent boat length in a fatality accident is less than 21 feet. In fact, 64% of the boats involved in fatal accidents are less than 21 feet. As noted previously, small boats require more attention to how you move around in the boat, how you load the boat and how you power the boat.



Open Motorboats and Manually Powered Boats Most Frequently Involved in Fatal Accidents

The most common type of boat in a fatal accident is an open motorboat, usually less than 21 feet in length. The second most common types of boats in fatal accidents are manually powered craft. Which are always small (less than 21 feet in length) and typically have flat or round bottoms. As a consequence, these boats have a tendency to capsize very easily.

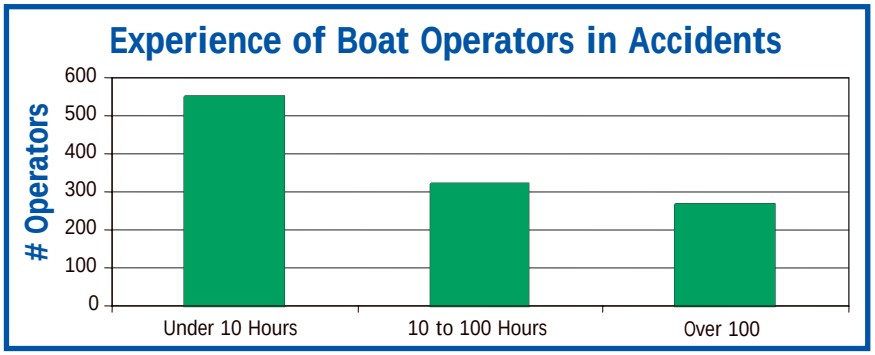


Chapter 2 What the Data Shows

Experience Helps but is not Foolproof

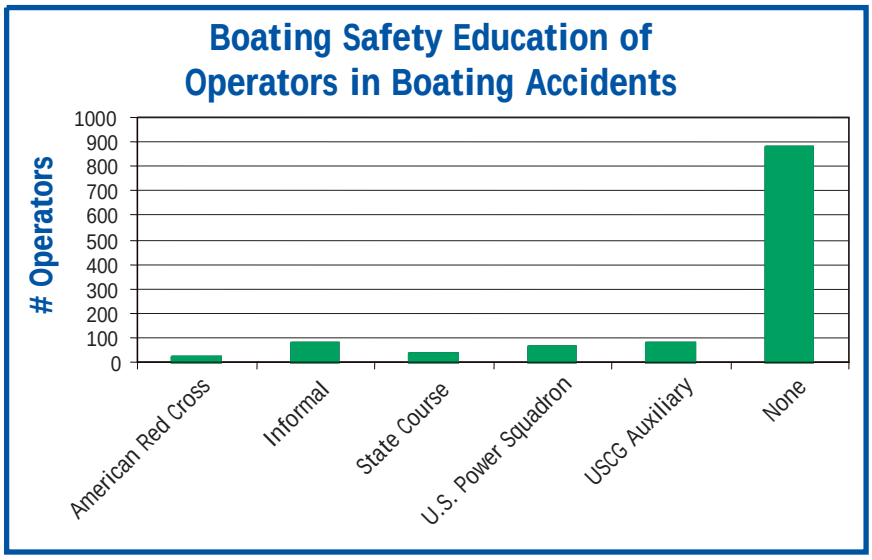
Like operating any other piece of equipment or vehicle, operating a boat takes skill and practice. Experience in a boat allows the operator to understand how that particular type of boat behaves and how to maneuver the boat in a variety of situations.

For the most part, the more experience you have, the more likely you will be able to avoid an accident emergency. However, if your experience is in using wrong procedures, the experience may hurt more than help. Experience is not a guaranteed aid as nearly 25% of the operators in accidents have over 100 hours experience driving their boat. (See appendix 2)



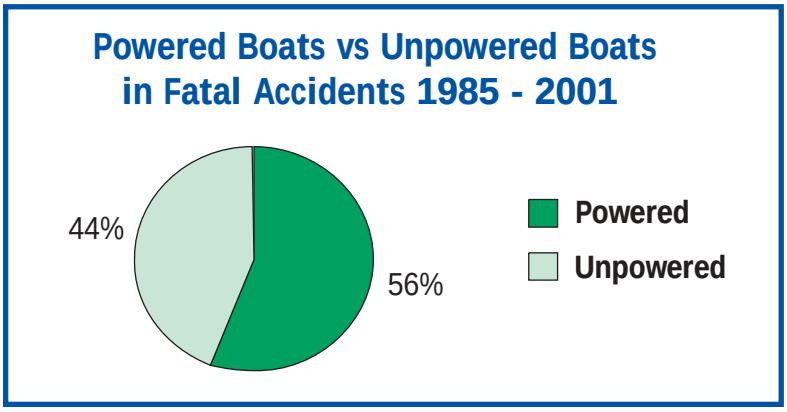
Most Boaters in Accidents Haven't had Formal Boating Safety Education

Education can substitute for some experience by making the operator aware of proper required equipment, knowing the rules of the road and navigation aids, and emphasizing how to prevent and/or respond to various types of emergencies. The large majority of operators who report their educational experience, report either having no formal safety course or only informal education from family. Only 13% of the operators report having taken a formal boating safety course. (See appendix 2)



Recreational Boating Safety in Washington

Over the past 18 years, non-motorized boats (canoes, kayaks, rafts, rowboats, etc.) have contributed 44% of the boating fatalities in Washington.



Summary of Accident Data

In reviewing boating accident and fatality data we found:

- Each year there is an average of 30 fatalities and 150 recreational boating accidents in Washington, not all of them reportable to the U.S. Coast Guard, but all of them reportable to local law enforcement.
- 40% of all accidents were collisions with another boat.
- The two most frequent causes of accidents were operator inexperience and operator inattention.
- 80% of accidents involved boats that were less than 21 feet in length.
- 59% of boat operators involved in accidents had less than 100 hours of experience.
- 87% of boat operators involved in accidents had no safety instruction.
- 46% of all fatal accidents were caused by the victim falling overboard and the boat capsizing.
- 64% of boating fatalities occurred in open motorboats under 21 feet.
- 70% of fatality victims were not wearing personal flotation devices.
- 20% of fatalities occurred in boats with motors of under10 horsepower.
- 44% of fatalities occurred in non-motor powered boats.
- 87% of injuries occurred in boats of over 10 horsepower.

Hypothermia is a Hidden Factor in Many Washington Boating Accidents

Most boaters do not expect to be in the water during their boating outing and are not prepared for very cold water. Many adults do not realize how cold the water is, after all 50° F is close to being shirt-sleeve weather. Heat is lost from the body 25 times faster in water than it is from being in the air.

Fatal accidents in Washington in small boats (67% of all fatalities) are usually from a capsizing or a fall overboard and are often fatalities because most water in Washington is near or below 50° F year round. An average person, wearing light clothing and a life jacket may survive 2 ½ to three hours in 50° F water. The American Canoe Association published the following comments on cold water boating:[9]

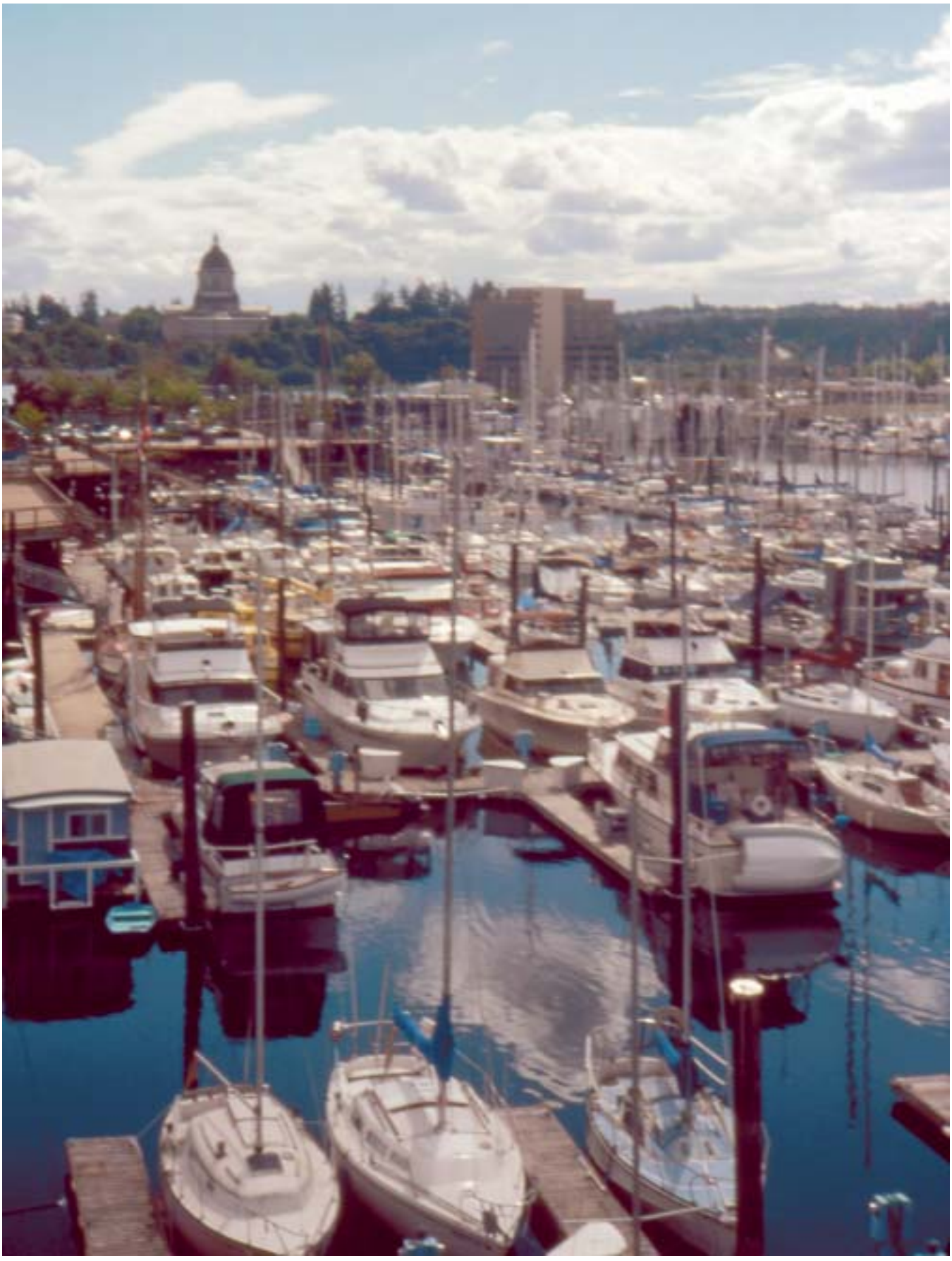
[9] http://www.enter.net/~skimmer/coldwater.html

Chapter 2 What the Data Shows

"Hypothermia (decreased body temperature) develops more slowly than the immediate effects of cold shock. Survival curves show that an adult dressed in average clothing may remain conscious for an hour at 40° F and perhaps 2-3 hours at 50° F (water temp.). The crisis is more serious than these numbers suggest. Any movement in the water accelerates heat loss. Survival time can be reduced to minutes. Hands rapidly become numb and useless. Without thermal protection, swimming is not possible. The victim, though conscious, is soon helpless. Without a life jacket, drowning is unavoidable. Immersion in cold water rapidly incapacitates and may kill boaters who are not wearing protective clothing.

Cold water removes heat from the body 25 times faster than cold air. About 50% of that heat loss occurs through the head. Physical activity such as swimming or other struggling in the water increases heat loss. Survival time can be reduced to minutes. Strong swimmers have died before swimming 100 yards in cold water. In water under 40° F, victims have died before swimming 100 feet".[10]

[10] Ibid

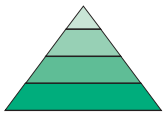


Near misses are accidents that almost happened

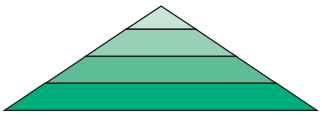
"H.W. Heinrich changed the world of safety fundamentals forever with his pioneering work in the 1930s. One of his concepts that continue to make me think, is his accident triangle (pyramid) - for every 300 unsafe acts there are 29 minor injuries and one major injury. It's the concept that we all are familiar with. So many near misses lead to an analogous number of first aid injuries and onward through the logic to recordables and ending in the inevitability of a fatality."[11] (Dr. Mike Williamsen)

The Heinrich Accident Triangle concept is simple and the actual numbers in the triangle are not as important as the ability to compare triangles. If we consider all accidents in a particular industry or sport, we can describe a ratio of seriousness. For example in boating safety we would look at the ratio of fatalities to serious injuries to non-injury accidents and use the triangle to determine the approximate number of near misses that have occurred.

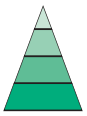
This would show that for every fatality, there would be 30 serious injury accidents; 300 non-injury accidents and 3,000 near misses. As safety improves the broader the base of the triangle becomes. As persons improve safety practices, the triangle might move over time to 1:60:600:6000. Conversely, if safe practices are ignored the triangle might become narrower based as 1:10:100:1000.



1:30:300:3000



1:60:600:6000



1:10:100:1000

Unfortunately, there is no real world triangle we can use to say "when we reach this point" we have safe boaters. However, we can use the relative triangle ratios to compare either different states or even the same state at different times.

Rather than focus on compliance, concentrate on safety fundamentals

Using data from U.S. Coast Guard accident statistics[12] , we can compare the relative ratios of other states to Washington.

	Washington	Illinois	Wisconsin	National	Minnesota	Michigan
Fatal	1	1	1	1	1	1
Injuries	2.5	5	6	6	6	8
Accidents	5	10	10	10	10	86
Near-Misses	50	100	100	100	100	860

Here we see the difference between Washington, four other states and national data. Basically, boating in Michigan may be a lot safer than boating in Washington. For every 860 near misses in Michigan there is one

[11] http://www.ishn.com/CDA/ArticleInformation/features/BNP__Features__Item/0,2162,91556,00.html
[12] Information taken from annual U.S. Coast Guard Statistic publication

fatality. Whereas in Washington, for every 50 near misses, we can expect one fatality. If Washington had 860 near misses, it is possible to assume we would have over 17 fatalities.

The study of occupational risk management has found that there are three areas which can be addressed to improve accidents and fatalities in any type of situation: equipment, environment and human behavior. Our society has addressed these three areas as follows:

- In part, improvement since the Safe Boating Act of 1971 is due to changes in boat design and construction materials, improvements in PFD materials and design and this has lowered fatalities and injuries.
- The boating environment is made safer by aids to navigation which are intended to help boaters move around in/over the water in ways which prevent accidents and conflicts.
- Local law enforcement has provided on-the-water patrols and search and rescue, when needed.
- The efforts of state boating safety programs, citizen volunteer groups and local law enforcement involvement in providing boating safety information and training have also raised awareness and contributed to safer boaters.

Equipment and environmental issues have been addressed to the greatest degree possible at this time. This leaves the human behavior area as the subject area where further changes can be made. The best way to institute long-term change in behavior is through education.

In Washington, our statistics indicate that 87% of boaters have never taken a formal boating safety course. We know that education can work by increasing the understanding of the "rules of the road", how various types of boats move in and over the water, and emphasizing the wearing of life jackets (personal flotation devices) along with the hazards of hypothermia.

The recreational boating registration figures show that the number of boats on the water is gradually increasing over time. We expect that this trend will continue. With more boats and more boaters on the water crowding and conflict between users will continue. If we are serious about wanting to improve everyone's boating experience, then we must find ways that will contribute to individual boater's safety on the water and smoother interaction between individual users.

With only 13% of our boating population having voluntarily taken safety classes, it would seem that mandatory boating safety education is the most practical next step to dealing with lessening the impact of accidents and fatalities and in increasing boater satisfaction. Thus, all educated boaters will be aware of their responsibilities and obligatory behaviors. We will never totally eliminate accidents or fatalities. The water will always be a dangerous environment for humans, but the danger can be countered and severity of accidents can be lessened by changing behaviors.

How Washington compares to some other states

Washington ranks eighteenth in the number of registered boats and twenty-sixth in the number of accidents. But it ranked fourth in the number of fatalities per 100,000 registered boats in 2001.[13]

Comparison of States by Fatalities per 100,000 Registered Boats For the Year 2001			
State	**Registered**	**Fatalities**	**Fatalities Per/100,000**
Alaska	41,110	21	51.1
Wyoming	27,221	8	29.4
Louisiana	322,779	43	13.3
Washington	260,335	33	12.7
New Mexico	36,127	4	11.1
Kentucky	171,930	18	10.5
Utah	79,586	8	10.1
Montana	50,808	5	9.8
Idaho	81,438	8	9.8
Rhode Island	41,224	4	9.7
Colorado	104,476	10	9.6
Massachusetts	146,475	14	9.6
Nevada	61,122	5	8.2
West Virginia	63,061	5	7.9
Virginia	240,509	19	7.9
Maryland	197,005	15	7.6
Hawaii	13,903	1	7.2
Oregon	195,636	14	7.2
Maine	119,243	8	6.7
Texas	621,244	41	6.6
Arkansas	199,713	13	6.5
Alabama	262,016	17	6.5
Indiana	218,255	14	6.4
New Hampshire	99,520	6	6.0
Vermont	33,988	2	5.9
Kansas	102,755	6	5.8
Florida	902,964	52	5.8
California	957,463	48	5.0

Table 4: Comparison of Washington Fatalities with other states - *continued next page*.

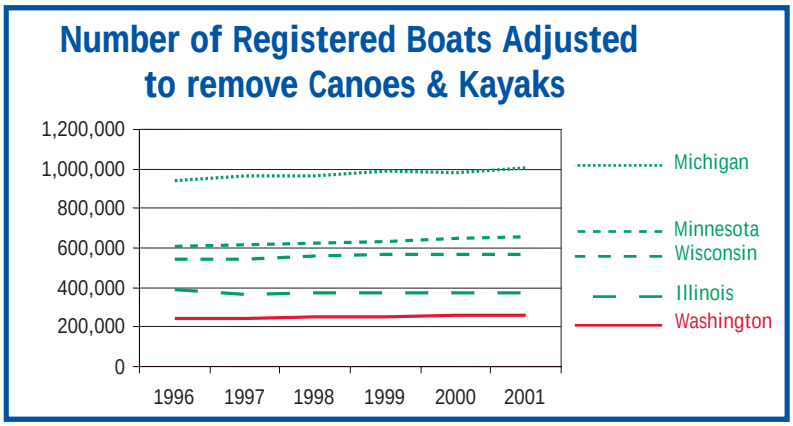
[13] 2001 is the most recent year available for U.S. Coast Guard boating statistics.

Comparison of States by Fatalities per 100,000 Registered Boats For the Year 2001			
State	**Registered**	**Fatalities**	**Fatalities Per/100,000**
Mississippi	300,970	15	5.0
New York	526,190	25	4.8
South Carolina	382,072	18	4.7
Arizona	148,623	7	4.7
Ohio	414,658	19	4.6
Tennessee	256,670	11	4.3
Pennsylvania	359,525	14	3.9
Connecticut	105,362	4	3.8
Wisconsin	575,920	20	3.5
New Jersey	206,562	7	3.4
North Carolina	535,560	17	3.2
Michigan	1,003,947	28	2.8
Missouri	335,521	9	2.7
Georgia	327,026	8	2.4
Oklahoma	229,454	5	2.2
Illinois	369,626	8	2.2
Delaware	47,486	1	2.1
South Dakota	51,226	1	2.0
Minnesota	826,048	16	1.9
Iowa	210,841	1	0.5
Nebraska	74,653	0	0.0
North Dakota	51,483	0	0.0

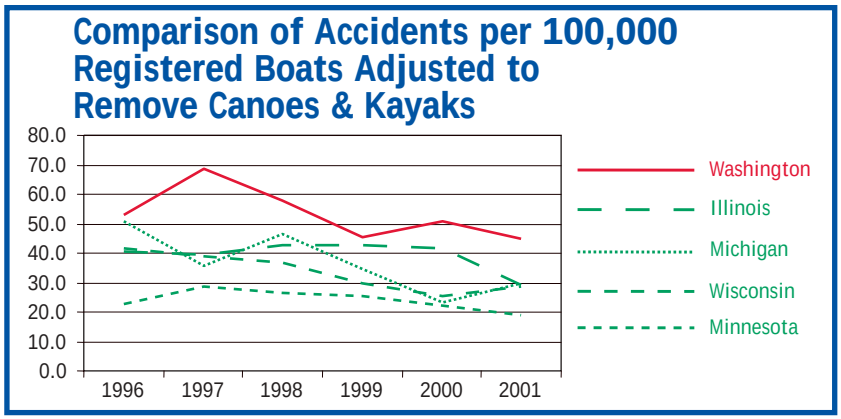
Table 4: Comparison of Washington Fatalities with other states - *continued from previous page*.

Does Education Work?

In reviewing information from other states, we compare Washington to other cold-water states that have had boat operator safety education required for 20 or more years, assuming that it takes time for education to make an impact in the statistics. We chose Wisconsin, Minnesota, Michigan, and Illinois as comparable states. Records indicate that these states have more registered boats than does Washington. Some of these states also register canoes and kayaks, and Washington does not. To assure a fair comparison, the frequency, per 100,000 registered boats, does not include any canoe or kayak registrations.

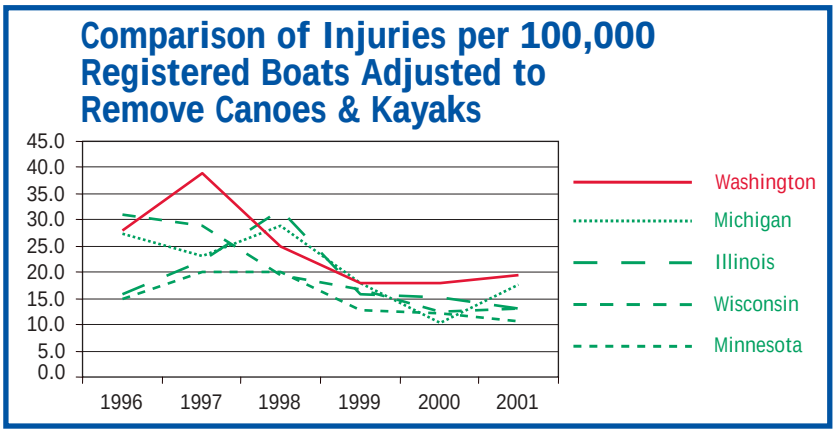


Washington has the lowest number of registered boats in this comparison with approximately 262,000. But, although Washington has the lowest number of registered boats of these five states, it has more accidents per 100,000 registered boats annually.

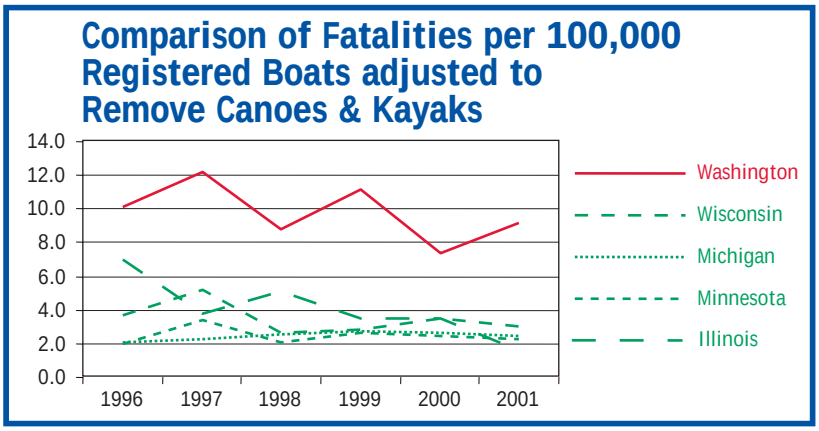


Recreational Boating Safety in Washington

In 1996 and 1998, Washington reported fewer injuries than two of the other states, otherwise, Washington leads this group of states in injuries too.

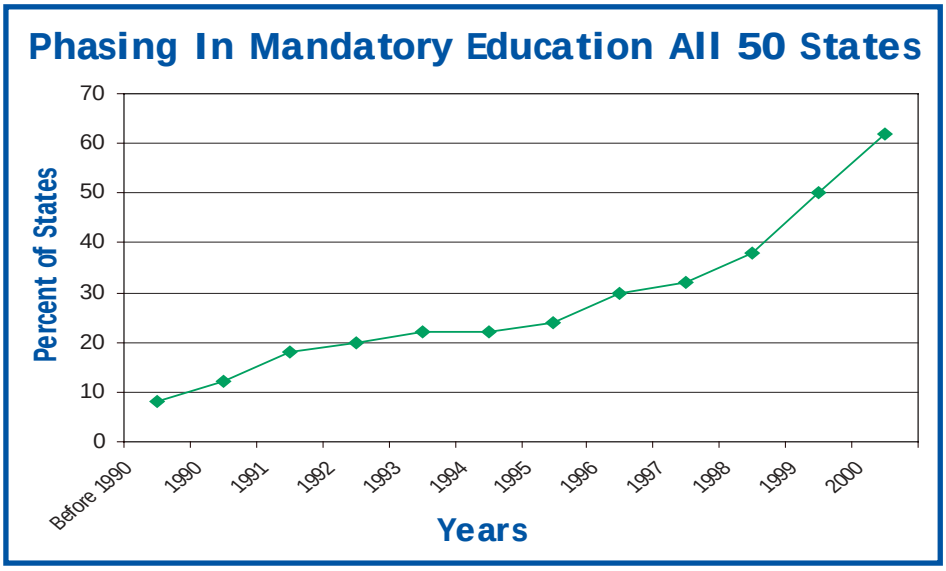


Washington leads this group of states in number of fatalities annually.



Chapter 3 Evaluation of Data and Comparison to Other States

Other states have taken note of states like Wisconsin, Michigan, Minnesota and Illinois the result has been that the number of states with some form of mandatory education has jumped from less than 10 to over 35 since 1990. Currently, thirty-seven states and Canada have some form of mandatory boater education. Compared with Washington, states that have had mandatory boater education for many years clearly experience proportionately fewer boating accidents. See map in Appendix 3.

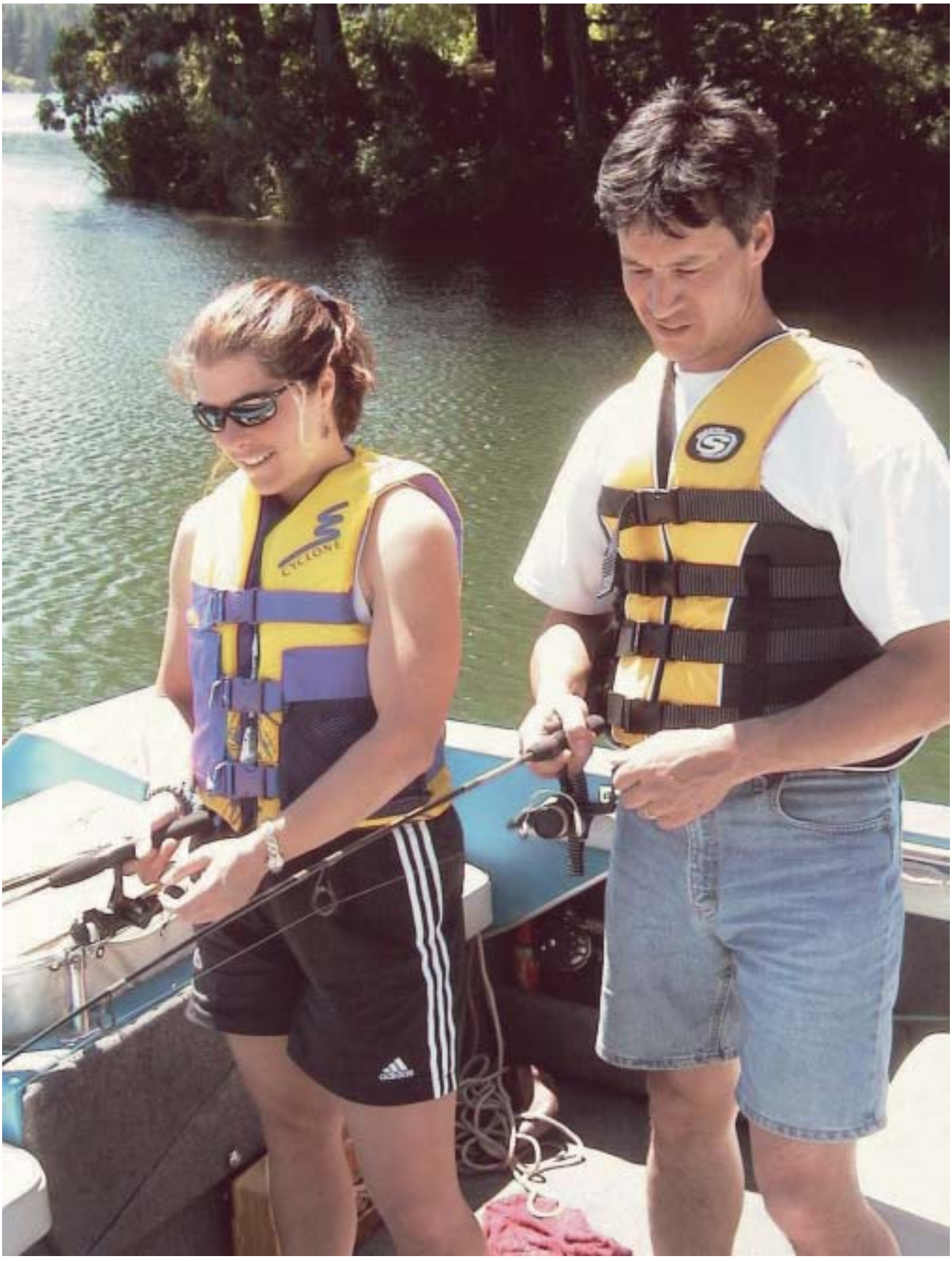


What is happening in Oregon?

Boating in Oregon is similar to boating in Washington with boaters traveling back and forth between the two states on a regular basis much the same as our state's residents do by motor vehicle. Along with Oregon, we have in common the Columbia River from the Tri-Cities in Eastern Washington to the mouth of the Columbia at Astoria. And, like Washington, Oregon has a variety of types of boating activity on a variety of types of bodies of water. Unlike Oregon, Washington has Puget Sound, a year round boaters' paradise. Even so, the similarities outweigh the differences.

Oregon's annual boat registration is approximately 195,000. Their fatality rate is usually not quite half of Washington's. Every three years, the Oregon Marine Board conducts a survey of boater opinions on boating experiences. Paul Donheffner, Director of the Oregon Marine Board, stated that user conflicts (near misses) on-the-water were resulting in poor boating experiences for many boaters. In addition, he concluded that the only way they could reduce conflicts and accidents was through a program of mandatory boat operator education.

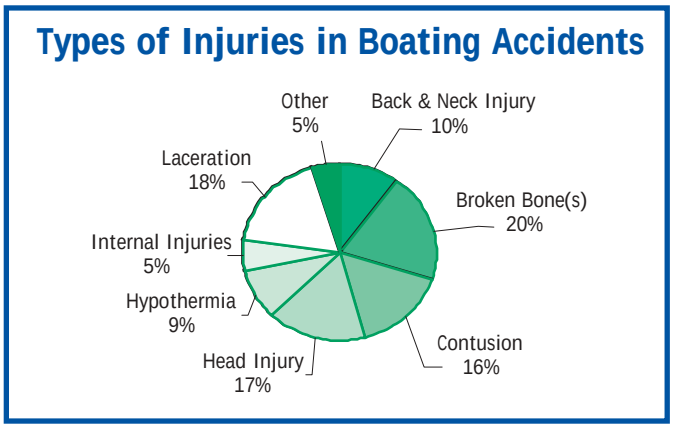
In 1999, the Oregon Legislature agreed and passed a bill requiring all operators of recreational motorboats have sufficient knowledge to operate a boat safely.


CYCLONE

Chapter 4 The Cost of Boating Accidents

Direct Social Costs of Boating Accidents

Not all accidents are fatalities and boating accidents provide more than cuts, bruises, and broken bones to victims. Not only do accidents result in more than $900,000 worth of damage each year in Washington, but can also be the cause of a near drowning, neck, back, and/or spinal damage, or head trauma. These three so-called invisible injuries – brain injuries, head trauma, and back and spinal column injuries — are expensive not only in terms of human suffering, but in terms of dollars. Many times the costs are not paid by the victim himself, but by insurance and social services taxes. In other words, these costs affect everyone's pocketbook, too!



In the State of Washington, 76% of boating fatalities are due to drowning. We can assume from this statistic that there are also many near-drowning cases, although they may not be counted among the injuries. A near drowning can cause trauma brain injury[14] that has a lasting effect on the life of not only the victims, but also their families. Elizabeth Bennett of Seattle Children's Hospital provided the following information from national data on near drowning victims.

- Near drowning emergency room cost = $75,000
- Long-term care for near drowning victim = $180,000/year
- Cost of near-drowning that results in brain damage = $4.5 million over the life of victim

In addition to any near drowning caused by a boating accident, head trauma accounts for 17% of the boating injuries in Washington. Head trauma occurs when the victim's head hits a part of the boat, a floating object, a submerged object, or otherwise is damaged. Head trauma almost always causes brain injury. Some facts, provided by the Family Caregiver Alliance, indicates the average cost of head trauma, from all causes, (abstracted from national data) is as follows:

- While most head injuries are minor, moderate and severe head injuries account for 20% of all head injuries.
- For an individual head injury survivor, the lifetime costs for care are estimated to be between $4.1 million and $9 million.
- In terms of acute care, the average hospital stay for a patient with severe head injury is about 45 to 60 days at a cost of $324,000 per person. In the United States alone, the total annual cost of hospitalization for all head injuries from all causes exceeds $37 million.

[14] In the past near drowning and traumatic brain injury have not been listed on the accident report form as types of injuries.

- On average, post-hospital rehabilitation services cost $125,000 per year, per survivor, and may be required for several years.
- Long-term disabilities are experienced by 70-90% of individuals suffering mild head injuries. Almost all report verbal problems and 59% have impaired memory.
- About 10% of all mild head injury survivors have permanent neurological deficits and one-third are unemployed six months after injury.
- Almost 15% of persons employed full time before a head injury will not have returned to work four years later.

10% of boating accidents injuries are to neck, back or spine. This type of accident can cause partial or severe paralysis. The direct cost estimates for this type of injury are: [15]

Average Yearly Expenses in 2000 dollars		
Severity of Injury	First Year	Each Subsequent Year
Most Severe Quadriplegia	$ 572,178	$102,491
Less Severe Quadriplegia	$ 369,488	$ 41,983
Paraplegia	$ 209,074	$ 21,274
Incomplete Motor Function at any Level	$ 168,627	$ 11,817

Table 2: Average yearly cost for victims who are paralyzed from all types of accidents

Over the lifetime of the victim, which is ultimately shortened because of the injury, the direct expenditures for living with injury can be high.

Estimated Lifetime Costs by Age at Injury (discounted at 2%)		
Severity of Injury	25 Years Old	50 Years Old
Most severe Quadriplegia	$2,185,667	$1,286,714
Less Severe Quadriplegia	$1,235,841	$ 782,628
Paraplegia	$ 730,277	$ 498,095
Incomplete Motor Function at any Level	$ 487,150	$ 353,047

Table 3: Estimate of Costs over a lifetime for victims who are paralyzed from all types of accidents

[15] These costs apply to all types of circumstances where injuries have occurred including boating accidents.

The Spinal Cord Information Network notes that these figures do not include any indirect costs such as losses in wages, fringe benefits and productivity which could average almost $49,312 but vary substantially based on education, severity of injury and pre-injury employment history. These same indirect costs could also apply to near-drowning and head trauma victims.

Boating accidents and their societal and community costs

Throughout the United States, including Washington State, the boating community has grown substantially. Today, alone, an estimated 8,034 boats will be sold in our country as reported by marine manufacturers. Of this number, approximately 222 will be sold in Washington State. These boats range in type from the simplest inflatable raft to cabin cruisers, both manually and mechanically powered.

Statistically, some of these operators and their boats will be involved in serious accidents in our state. As records indicate, Washington State ranks fourth in overall boating fatalities. The costs associated with these incidents vary greatly. In addition to costs, we will look at which components of formal boating safety education address the elements found in each accident — "If the boat operator had taken a boating safe class, what knowledge would he or she have gained that may have changed the outcome of the accident or prevented the accident entirely?"

The information on costs was provided by county marine law enforcement programs. "Almost all Law Enforcement efforts are directed at boaters after they are on the water. The education component, on the other hand, focuses almost entirely on preventative measures before boaters are on the water. Education refers to traditional education programs as well as outreach programs encouraging safe boating, focusing on long-term changes to boaters' behavior".[16]

U.S. Coast Guard Information:

"Today's national recreational boating safety program was established by the Federal Boat Safety Act of 1971 …that encouraged greater state participation…particularly to permit the States to assume a greater share of boating safety education, assistance, and enforcement activities".[17] Although the majority of distress calls are taken by city and county law enforcement marine programs, the U.S. Coast Guard also continues to assist in search and rescue (SAR) and the spokesperson for the District 13th Coast Guard District (that includes Washington), reported the following three-year statistics for Puget Sound:

280 cases were reported per year;
1,530 sorties were completed at an average of four hours each;
$14.7 million dollars were spent for SARs; and
$ 9.3 million dollars were spent for aircraft SARs.

Considerable time and research has gone into the final review of boating accidents and incidents. Many anecdotes have been reported in newspapers and to marine enforcement agencies in the form of boating accident reports or near misses for the year 2002. The following are excerpts from four incidents that have occurred in our state:

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[16] "*Saving Lives and Preventing Boating Related Accidents*" a publication from the National Association of Boating Law Administrators, 2003
[17] ibid

City and county marine law enforcement programs not only bear the cost of patrolling the water and providing boating safety education to local boaters, they also have the cost of mounting rescue missions. For example, in 2001 $1.8 million vessel registration fees were distributed to counties and cities with marine law enforcement program solely for boating safety law enforcement and education. During the same period these programs reported expenditures of an additional $4 million in local monies to support marine law enforcement and education.

The costs associated with a Search and Rescue or a Search and Recovery (SAR) vary greatly, dependent upon the situation. SARs account for a large portion of the marine enforcement time and dollars. Each year, hundreds of man-hours are spent looking for individuals who found themselves in trouble on the water. Along with the personnel involved, a wide variety of equipment is used in these "missions." The following boating incidents occurred in Washington State during the years 2002 or 2003 and are representative of the costs incurred by the counties:

Grant County:

A young boy, his father, and an adult friend went fishing on Moses Lake. The mother called 9-1-1 to report the trio as missing when they failed to return on time. The Grant county Sheriff's Office responded. Deputies determined where they had launched their boat and began a search of the water and shoreline. The boy's body was recovered late Monday night along the shoreline. He was wearing a life jacket, although it was not properly fitted. The search for the two adult men continued for two straight days, then periodically. The boy's father's body was recovered on the 75th day and the other adult man on the 77th day.

The Lead Marine Officer for Grant County provided the following cost breakdown of the search and recovery mission:

440 man-hours were spent	$12,100.00
Side-Sonar boat / 2 days	$ 3,000.00
Aircraft - 6 hours @ $150.00 per/hour	$ 900.00
Fuel for boats	$ 190.00
Medical Examiner / 3 bodies @ $1,100 ea.	$ 3,300.00
Total for SAR	**$19,490.00**

What could have been learned in a Boating Safety Course that may have helped prevent the seriousness of this accident? Knowledge about:

- Life Jacket Type and Wear
- Required Equipment
- Checking Local Weather and Water Conditions
- Checking Local Hazards
- Boat Preventive Maintenance
- Emergency Preparedness
  - Capsizing
  - Falls Overboard
- Hypothermia Prevention
- Special Watercraft or Activities
  - Hunting & Fishing, Special Precautions

Chapter 4 The Cost of Boating Accidents

Clark County

Clark County Sheriff's Office Marine Patrol Units operate under a unique circumstance. Several of their deputies are dual commissioned officers. They hold commissions from Washington State along with Oregon's Multnomah County. This allows them the flexibility to serve the public along both borders. The following incident is an example of their partnership with Oregon:

The victim apparently headed out in his 14-foot boat on June 1st, fishing. Residents along Vancouver Lake reported seeing a boat adrift without an operator. A search was launched without success. Two days later, another caller reported a similar boat stuck in the trees. The boat was located around 10:15 pm on the third day with the outboard motor in the running position and the gas tank empty. A search of the boat indicated that one person must have been on board, as clothing and fishing gear were found along with numerous other items. Evidence found on the boat suggested that the occupant may have been drinking alcoholic beverages and possibly had fallen out. The victim's body was recovered the following day.

The following costs are directly related to the day of the search:

Clark County Sheriff's Office - 5 Officers / 30 hours	$ 5,250.00
Multnomah County Marine Patrol - 1 Officer / 3 hours	$ 105.00
Clark County Sheriff's Office - Patrol Boat / 7 hours@$50per	$ 350.00
Aircraft - one and one-half hrs	$ 135.00
Total Directly Related to Search	**$ 5,840.00**

* Note: The above cost breakdown only relates to the initial search.

We have been unable to determine the exact value of the following additionally costs incurred:

Body Recovery -
Clark County Sheriff's Office - 2 Officers
Clark County Sheriff's Office - 1 Patrol Boat
Clark County Medical Examiner
Clark County Fire District Personnel & Equipment

Related Items -
Clark County Sheriff's Office - Report Writing Time
Multnomah County Marine Patrol - Family Notification
Clark County Sheriff's Office - Family Notification
Clark County Sheriff's Office - Property Recovery & Return

What could this man have taken away from a Boating Safety Class which might have made this accident less serious? Knowledge about:

- Life Jacket Type and Wear
- Boat Capacities and Characteristics
- Required Equipment
- Checking Local Weather and Water Conditions
- Checking Local Hazards
- Influence of Drugs and Alcohol on Boating
- Emergency Preparedness
  - Falls Overboard
- Hypothermia Prevention
- Special Watercraft or Activities
  - Hunting & Fishing, Special Precautions

San Juan County:

In the early hours of July 3rd, one man set out on a kayaking trip. He did not reach his destination and the family notified local law enforcement. The following day, a passing boater discovered an overturned kayak with the bow caught between rocks. The man's body was still inside the cockpit, hanging downward, apparently caught. A fishing rod and gear were located in the kayak with the line out. Additional items were also found in the boat that indicated the victim may have operating under the influence of drugs. San Juan County Sheriff's Office deputies recovered the body.

Sheriff Bill Cumming provided the search and recovery costs for a 12 hour mission. The costs are for SAR for a kayaker missing in the waters of San Juan County.

2 patrol boats @ $50.00 per hour each	$ 1,200.00
2 boat operators @ $35.00 per hour each	$ 840.00
6 rescue divers @ $60.00 per hour each	$ 4,320.00
1 supervisor @ $32.00 per hour	$ 384.00
1 coroner @ $45.00 per hour / 4 hours	$ 180.00
1 Medical examiner, plus staff	$ 1,000.00
1 transportation of body	$ 400.00
1 USCC Helo @ 3 hours	$ 3,000.00
1 Fixed wing aircraft w/officer / 3 hours	$ 285.00
Total for the SAR mission	**$12,609.00**

The above cost analysis does not include incidentals (i.e., food, drinks, and shelter) for SAR staff.

What could this man have taken away from a Boating Safety Class which might have made this accident less serious? Knowledge about:

- Life Jacket Type and Wear
- Boat Capacities and Characteristics
- Required Equipment
- Checking Local Weather and Water Conditions
- Checking Local Hazards
- Influence of Drugs and Alcohol on Boating
- Emergency Preparedness
  - Capsizing
- Hypothermia Prevention
- Special Watercraft or Activities
  - Hunting & Fishing, Special Precautions

The total number of boats on our state's waterways continues to grow on a daily basis. The congestion found at most boat launches and on the water also grows. The main focus of the Senate Bill 5898 has been to examine all of the statistics and make recommendations based upon the facts. The anecdotes cited in this report are representative of the types of incidents that are occurring on Washington waters.

Chapter 5 – Discussion of Ways to Achieve Safe Boating Practices

What is Washington's history of boating safety efforts?

As has occurred at the national level the U.S. Sail and Power Squadrons have been providing boating safety education courses to the public since the early part of the 20th century. In 1944 the first squadrons were established in Washington and since then have been offering free boating safety courses to the public. Similarly, the U.S. Coast Guard Auxiliary, created by act of Congress, to assist the U.S. Coast Guard with civilian missions during the second world war (WWII), have offered free boating safety courses to the public. Today these organizations have over 40 local units in Washington State working to make recreational boating safer through public courses, participation at booths at local fairs and boat shows, at boat-launch ramps courtesy vessel safety inspections, and talks on boating safety in middle school classrooms throughout the state. These two organizations have limited financial support for their boating safety education activities derived from donations and membership dues.

Other volunteer organizations like the Sailing Foundation, Footloose Sailing Association, The Mountaineers, Washington Kayak Club, Washington Water Trails Association and the Boy Scouts of America also provide boating safety education for their members. City and county park districts, the American Red Cross, and some schools like Quincy Junior High School in Grant County (which has a nationally recognized boater safety education program for teens) also provide boating safety training on an annual basis. These volunteer organizations derived financial support from dues and donations. Park districts and schools derive their funding from local tax base. The American Red Cross derives its funding from donations and charges for classes.

The Northwest Marine Trade Association (a regional association of marine businesses supported by membership dues), marine retail stores (ex. Boating World and West Marine) and boat dealers have historically supported boating safety by offering organizations space in their stores for classes, free booth space at boat shows, and sometimes contributing to the cost of education materials.

County and city marine programs have evolved over many years to be a primary force in not only providing patrols on the water but also providing safety education in local schools and at local community events. Many also support the other volunteer organization's boating safety education efforts. Although marine law enforcement often focuses on problems including accidents and violations after they occur, an important element of law enforcement is prevention, as officers' presence has proven to deter unsafe boating practices. County and city programs are funded in part by vessel registration fees and by local taxes.

Since 1985, State Parks has been the agency with a legislative mandate to provide boating safety information and education on a statewide basis.[18] Through an annual grant from the U.S. Coast Guard, this program has been able to provide some funding for volunteer organizations and cooperates with county and city law enforcement agencies in training officers for marine patrol and accident investigation. Each year State Parks also targets all recreational boaters with general boating safety campaigns through the media and specific boaters by type of activity such as angling, hunting, kayaking, sailing, etc. depending on availability of funding and the conclusions from analysis of accident reports.

In order to conduct a statewide boating safety program, since 1985 Washington State Parks has called on the advice of its Boating Safety Council. Created in 1985, the Council membership has evolved to include representation of most types of boating activities in this state. Council members meet with Boating Program staff periodically throughout the year to provide advice in the administration of the statewide boating safety program.

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[18] RCW 79A.05.310 see Appendix 8

Every year the State Parks Boating Program also partners with a variety of other organizations in addition to the ones named above to develop information campaigns to provide safety information to various groups of boaters. We are especially concerned about opportunities for partnerships to focus our joint efforts on emergent situations. For example, in 2001 there were 14 fatalities among fishermen at the mouth of the Columbia River (called by the U.S. Coast Guard Buoy 10) six of whom were in Washington waters. The next year a partnership of groups including both Washington and Oregon Boating Programs, the U.S. Coast Guard and the U.S. Coast Guard Auxiliary, the Army Corps of Engineers, Wahkiakum County, Washington State Department of Fish and Wildlife, and others to blanket the launch ramps with information for boaters. In Oregon waters, the fatalities for 2002 dropped to one.

Although many continuing efforts are made each year to help boaters enjoy boating through understanding safe boating practices, both Washington State boating statistics and national boating statistics show that only about 12-13 percent of boaters in accidents have taken a boating safety class.

Homeland Security

Because of the recent terrorist attacks within the U.S. there has been an increased public awareness of illegal activities. Much like the Neighborhood Watch program, we need to inform, educate, and enlist the assistance of all boaters who witness suspicious activities. We need to provide boaters with information on what to look for and who to call. For example, when on the water, boaters can look for unattended vessels, unusual filming activity, lights flashing between boats and shore at night, and frequent trips between borders.

If boaters are ashore they can look for unattended vehicles in unusual locations at waterfront facilities and other structures including bridges. They can be observant of filming activity, divers entering the water near a facility or bridge or unusual activity on the water at night. Boaters need to know who to contact for suspicious activities, hazardous materials, suspected smuggling operations, or suspected illegal entry of foreign nationals. Most importantly, boaters need to know they should not do anything more than provide information. They should not try to stop any illegal activity (see Appendix 4).

What can be done to achieve safer boating practices?

During the four Council meetings and at monthly meetings of the Washington Alliance for Mandatory Boat Operator Education, we discussed past, current, and potential efforts to achieve safer boating practices. We looked at state and national accident data to determine what area of boating activity might need emphasis. We conferred with staff of the Oregon Marine Board to learn about their mandatory boat operator education program and to what extent did they believe their program was successful.

We discussed the pro's, and con's, and costs of mandatory education. The matrix on the following page summarizes that discussion and shows what has already been attempted and what else might work.

The Council believes that as the population in Washington increases and more boaters take to the water, the pressure on the resource will also increase. New and inexperienced boaters, as well as boaters who already are on the water, need to know how to avoid conflicts. The principal mechanism for such avoidance is understanding the rules of the road. From accident data, it would seem that very few boaters today actually understand that there are such rules on the water. The second mechanism is operating one's boat at the proper speed. Like when driving a car, you do not drive a boat at speeds that exceed your ability to control the boat in the given conditions. And, without painted lines and no traffic lights, courtesy is a must.

Action/Activity	How done	Outcome	Council Conclusions
Provide Classes on Voluntary basis	WA St Parks and other Independent Organizations.	Accident reports show 87% of Operators have not taken a class.	Has not been sufficient to change accident picture.
Radio Campaigns	WA State Parks	Has had some success, but may not be lasting success.	Has not been sufficient to change accident picture.
National Boating Safety Campaign	Combination of events and advertising.	No noticeable success.	Has not been sufficient to change accident picture.
In School Classes	Teachers provide boating safety training as part of regular course work.	Works well with middle school and older children. St. Parks experience is that it cannot reach sufficient children through schools.	Useful, but does not reach the boat operators who are in accidents average age of operator is 35.
Educational materials	Annual guides to safe boating in Washington.	Have useful information, but is a passive system, boater required to find answers on his own.	Has not been sufficient to change accident picture.
Law Enforcement	Enforcement of boating laws is on a local level – sheriff's department or local police department.	Boaters more likely to comply with existing laws relating to boating safety when there is a law enforcement presence on the water.	Would like greater enforcement efforts, but don't think this will happen until agencies have sufficient funding.
Operator Licensing	Either require a separate license for boat operators or tie boat operation to existing automobile licensing.	Has only been tried in a few states. Threat of losing license can help change behavior.	Way too strict for our boaters. Loss of license for a boating offence could result in loss of driving license. This is not a good idea.
Mandatory Operator Education	Require proof of completion of boating safety class.	Majority of states now have some form of mandatory education. Statistics from states which have had this in place for many years show a reduction in fatal and serious accidents.	Council recommends for Washington Boaters.

Table 5: Options for behavioral change

Chapter 6 - Conclusions and Recommendations

After reviewing the information, the Council recommended that mandatory safety education for recreational boaters as the best way to further decrease fatalities and serious accidents in Washington. The majority of accidents involved boats of 10 horsepower or greater, and this is the group that would most benefit from safety training.

The Council also recognized that although some groups of boaters or types of boating activities (such as white-water enthusiasts, sea kayakers, canoe paddlers, and rafters) may be found in the statistical accident data, efforts to provide safety education and information to these boaters has been limited. Since these groups have not really been targeted by various boating safety entities, the Council recommends that they be targeted with boating safety information and such efforts be monitored to determine whether mandatory boat operator education is necessary in the future.

After reviewing all available information, the Boating Safety Advisory Council came to the following six conclusions and recommendations:

Conclusion 1: The number of boating accidents and fatalities in Washington is too high and, following other states' examples it's possible to reduce the seriousness of accidents through boating safety education.

Recommendation: Continue the statewide boating safety education and information program targeting certain types of boating activities as analysis of accident report data suggests.

Conclusion 2: Mandatory boating safety education in other states has been shown to reduce serious accidents over time.

Recommendation: Make completing and passing a course on boat safety a requirement for most recreational boaters in Washington.

Recommendation: Recommend to legislature key elements of a mandatory boating safety education program.

Conclusion 3: Ninety-four percent of accidents and fatalities involving motor-driven boats have motors of 10 hp or more.

Recommendation: Make boating safety education mandatory for all operators of motor driven vessels of 10 hp or more.

Conclusion 4: Over forty percent of boating fatalities occur in non-powered boats. However, at this time, there is no national educational standard for manually powered craft.

Recommendation: Give canoeing and kayaking organizations up to six years to find ways of reducing fatalities among this segment of the boating public.

Recommendation: If at the end of six years no reduction in the fatality rate of manually powered boaters has occurred, recommend that this group of boaters also be required to take safety education classes.

Conclusion 5: Law enforcement visibility on the water contributes to safer boating practices.

Recommendation: Increase law enforcement presence on the water.

Recommendation: Seek method(s) to provide additional financial support for increased presence on the water.

Conclusion 6: Boaters have a role to play in supporting Homeland Security.

Recommendation: Ensure up-to-date information on Homeland Security is available to boaters through boating safety publications, media releases, etc

These recommendations are intended to increase the certainty that recreational boating remains a safe and enjoyable pastime for the residents of Washington by reducing the number of fatalities where possible, decreasing the seriousness of accidents and improving cooperation on the water by various types of boaters.

Chapter 7 - Funding

Costs of No Mandatory Education

The cost of not requiring mandatory boating safety education is that there may be no changes in operator/passenger behaviors. If behaviors don't change, the types and frequency of accidents will not change either. Over the past 10 years, boating accidents and injuries have remained at a relatively constant level with an average of 30 fatalities and 65 serious or life changing injuries a year. There is no reason to believe that this average, which is above the national norm, will drop without intervention of some kind.

Providing Mandatory Education

Providing a program of mandatory boat operator education is not cost free, but doesn't have to be prohibitively expensive. It must be easily accessible to boaters all over the state, and should be paid for by boaters.

Such a program must:

- Encourage volunteer organizations like the U.S. Sail and Power Squadrons, the U.S. Coast Guard Auxiliary, the Sailing Foundation and other private organizations to provide classes to the public or at least the opportunity of challenging an exam
- Ensure that the classes being provided meet NASBLA standards (see Appendix 5)
- Provide the boater with a waterproof, official "certificate" card
- Provide a database which would make it easy for boaters lost cards to be replaced
- Accept certificates from other states and countries, and make Washington "certificates" available to boaters moving into this state
- Keep boaters and the public aware of changing patterns of accidents and fatalities, which would be either being lowered or becoming less severe
- Continue to help support marine law enforcement education efforts

Cost of providing a mandatory education program

If mandatory boating safety education becomes a reality in Washington state, the certification will be for the life of the certificate holder and there will be a need for a centralized system that will make it possible to retain the information to enable the state to provide for name changes, lost, stolen, or damaged certificates. There will also be a need to advertise on a statewide basis the existence of mandatory education requirements and then how a boater may meet the requirements. There will need to be a centralized authority which will see to it that all courses provided to boaters meet minimum education standards (See appendix 5).

Startup Costs

We used Oregon's mandatory education program as an example. Using this model, the start up costs will cover:

Staff ($232,000):

One program education coordinator, responsibilities:

- Develop a course according to NASBLA educational standards (see appendix 5)
- Review non-state agency course provider's materials to approve for Washington State
- Administer an outreach program to advertise mandatory education requirements and how these may be met
- Provide training for city and county law enforcement marine program personnel
- Coordinate with U.S. Coast Guard Auxiliary and U.S. Sail and Power Squadrons to continue providing assistance to their public boating safety education programs

One Computer Technical Specialist:

Responsibilities:

- Install and maintain data base of persons who have successfully completed boating safety education courses and received their certificates
- Coordinate internet based education courses
- Coordinate boating program education website

One Data Entry Technician

- Receive and review all applications for certification
- Enter application data and coordinate mailing of completed certificates to boaters

One Office Assistant

- Routine correspondence on questions about certificates
- Answer telephone requests for information about program
- Assist data entry technician with receiving and reviewing applications for certification
- Assist data entry technician with entering information for certificates as necessary

Services, Supplies, Furniture and Equipment ($129,500):

Furniture and equipment

- Standardized work-stations and equipment will be needed for these four positions.
- Database Equipment and Software

The program will need either to purchase an existing specialized software package, if possible, or develop its own software. This software will need maintenance and updates, as necessary.

A computer server will need to be purchased to house the data. Links between computers at State Parks, Department of Information Services and Washington State Patrol are desirable and, if possible, will need to be established and then maintained.

Travel

There will be an ongoing need for the program coordinator to travel throughout the state to promote the program, meet with representatives of volunteer organizations, plan and provide trainings for law enforcement personnel, and attend educational meetings.

Office Supplies

There is an allowance for basic office supplies for each person employed.

Postage

Postage to mail completed certificates is calculated in payments to the Department of Printing in conjunction with the mailing of completed certificates. Other postage for office correspondence has also been covered in the budget plan.

Training

Each staff will be required to take training on the software used by the data base. The Computer Technician will require specific courses for the maintenance and updating of the primary software package. There is also budgeted additional training as needed for employees.

Rent, Utilities, Etc.
Overhead costs are calculated in the indirect payments the program pays the agency.

Publicity and Publications
It is planned that the program will provide a copy of our *Adventures in Boating Washington Course Manual* to those who wish to do a home study course at no charge.

A continuing campaign will be launched that will provide radio, newspaper and magazine advertising to let the boating public know about the mandatory education requirements and how they can meet these requirements.

Capital Outlay ($92,000)

In addition to the computer equipment needed, there will be software, scanner, printer and other peripherals needed for the database and their continuing maintenance and upgrades as needed.

Telecommunication charges
These are necessary charges to hook the database system to the state printer and will be an ongoing annual cost. There will be further set-up expenses and on-going charges for the program to interface with the State Patrol to make database information available to local law enforcement officers at all times.

Maintenance Costs

Program staff has consulted with the Oregon Marine Board about their experiences implementing a program of mandatory boating safety education. Washington has about 25% more boats and the same is probably true of boaters. When Oregon began their program they anticipated that it would drop significantly after all currently qualified persons had received their boaters' cards. However, their experience and the experience in other states that require boating safety classes for their operators seems to be that the work load does not decrease significantly because there is always a group of persons reaching the age when they can apply for a card, persons who have somehow lost or damaged their cards, and persons moving into the state who need to apply for cards.

This means that the program will need continuing maintenance. Staffing needs will not be reduced, but may be decreased by using temporary workers when there is a high demand. Equipment will need to be maintained and eventually replaced. Software will need to be maintained and perhaps even replaced as the capabilities of computers improve. It is estimated that it will take approximately $330,000 per year to maintain the program.

It is planned that the program be self-sustaining and user-funded. The experience of the Oregon Marine Board is that once the initial startup costs are met, the income from users applying for new or replacement cards is sufficient to support the program.

Potential Sources of Revenue

A. State Marine Fuel Tax – state tax on motorboat fuel. Approximately $10 M appropriated biannually to Interagency Committee for Outdoor Recreation for construction, repair, and reconstruction of boating related facilities. A one-time allocation of about $450,000 of these funds could be used for start up costs.

B. Excise Tax on Boats – state tax on value of boat based on ½% of appraised value of a boat. Funds currently go to State General Fund.

C. Vessel Registration Fee[17] **–** Annual fee of $10.50 for each registered vessel in this state. After first $1.1M balance of account is distributed to local marine law enforcement agencies with boating safety programs approved by State Parks. Approximately $2M distributed annually. Often makes up less than ½ of the local marine law enforcement programs costs. Balance is, or was made up by local match but that has changed with various initiatives reducing funds to local government.

D. Fee for Education Certificate – Fee needs to cover all costs to implement the program eventually. Oregon experienced huge interest in boaters getting their certificate well before implementation date of 3-year phase-in allowing them to use these funds to cover some initial start up costs. Ultimately this program needs to support itself as user fee based.

E. Fee Added to Education Certificate to support impacts to local marine law enforcement - May want to consider adding $2, 3, or more $$ to charge for each certificate to support local marine law enforcement.

F. One Time Vessel Registration Fee Increase – a one-time increase of the vessel registration fee of $1.75 would generate approximately $455,000.

[19] In the 93-95 biennium, these fees were increased by $4.50 per registered vessel to provide funding to county and city marine law enforcement programs.

Appendix 1

S-1477.1

SENATE BILL 5898

State of Washington 58th Legislature 2003 Regular Session

By Senators Oke, Doumit, Esser, Jacobsen, Swecker, Fraser and Shin

Read first time 02/19/2003. Referred to Committee on Parks, Fish & Wildlife.

AN ACT Relating to recreational boating; and creating a new section.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

{+ NEW SECTION. +} Sec. 1. Because of the number of recreational boating accidents, fatalities, and near misses on the waters of this state, the Washington state legislature believes there is a need to provide for safer recreational boating practices.

The legislature therefore directs the Washington state parks and recreation commission and the boating safety advisory council to research and recommend ways to reduce boating accidents, fatalities, and near misses. The Washington state parks and recreation commission should also include in its research recognition of the need for homeland security safety precautions for boaters.

The Washington state parks and recreation commission shall investigate a variety of methods to achieve safer boating practices, including a program of mandatory safe boater education, identifying the costs associated with designing, implementing, and maintaining mandatory safe boater education, and identifying all potential sources of funds to pay for such costs and report back to the legislature by January 1, 2004.

Appendix 2

Washington Boater Safety Education and Experience of Those Operators Involved in Accidents

The U.S. Coast Guard gathers information from every state annually on boating accidents which have occurred. Two questions on the accident reports ask about boating safety education and hours of experience of the vessel involved in an accident. These questions are not always answered. In some cases this may be because the operator does not see the question, and in other cases because the person filling out the report does not know about the education or experience of the operator or there may be some other reason it is not reported. In any case, while we can think of different reasons why the education box was not checked, it is probably reasonable to assume that, in fact, most boat operators have not taken any boating safety classes.

In Washington State, out of the 1,485 operators involved in accidents between 1996-2002, only 195 reported having any formal boating safety education. This is thirteen percent (13%) of the operators. Of the 145 fatality accidents only two operators were reported as having had a boating safety education class. This represents one (1%) percent of the boating fatalities.

We contacted Oregon, Idaho, Nevada, Alaska, Utah, and California and asked about their state's statistics on education as reported in their boating accidents and found that no one has looked closely at this parameter; therefore, we are not able to compare our statistics to those of neighboring states. Arizona publishes its annual statistics and the collective statistics for the past three years also show that only 13% of their boater operators in accidents report having had a formal boating class.

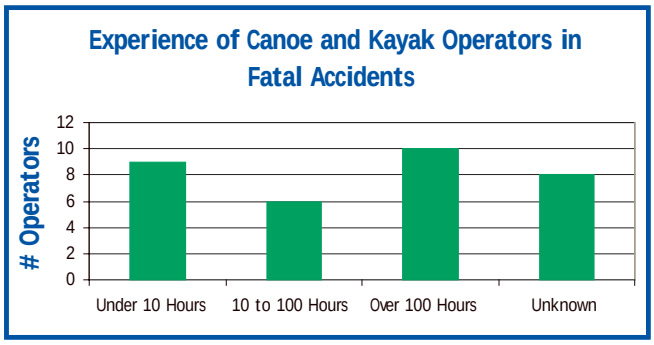
It seems that Arizona is getting approximately the same percentage of educated boaters as Washington and makes it quite likely that the thirteen percent is a valid number. If this is so, then the one percent of fatalities having had some formal safety education may also be a valid number.

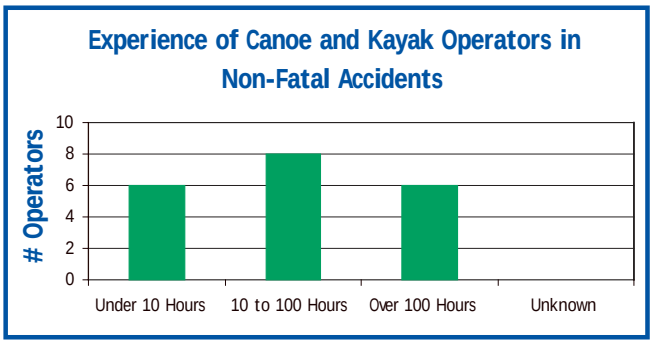
Since a larger percentage of boaters who are in non-fatal accidents seem to have taken a boating safety class compared to boaters in fatal accidents, it would seem that education is key.

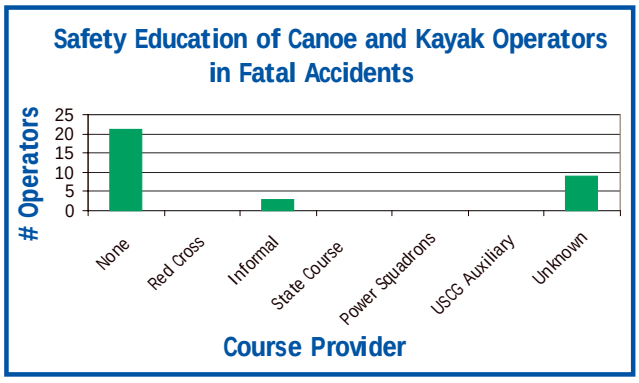
Recreational Boating Safety in Washington

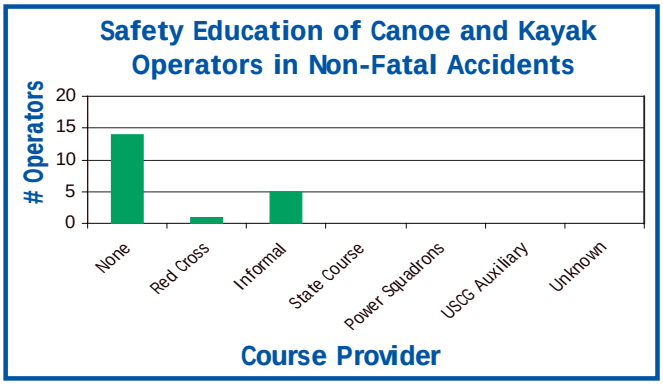
Here is a look at the experience and education of boat operators comparing fatality accidents versus all other accidents. We are looking at the major types of vessels. We are leaving out other (e.g. tugboats) and unknown boats which we know nothing about.

In alphabetical order, we have Canoes and Kayaks: These are manually powered craft. Only one canoe operator in an accident had taken a safety class. This equals less that 2% of the operators. None of the operators in fatal accidents were known to have taken a safety class.



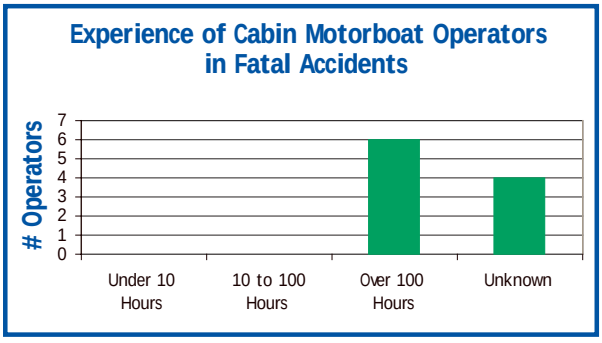


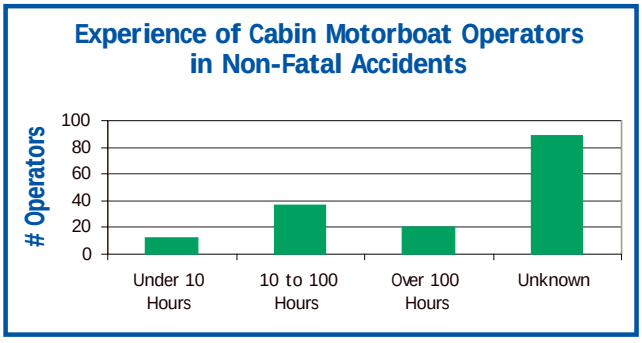


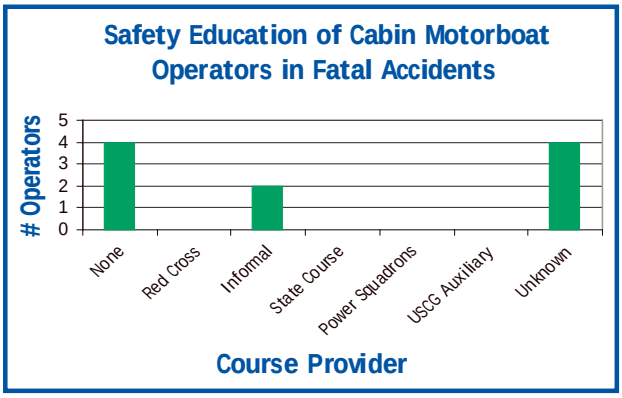


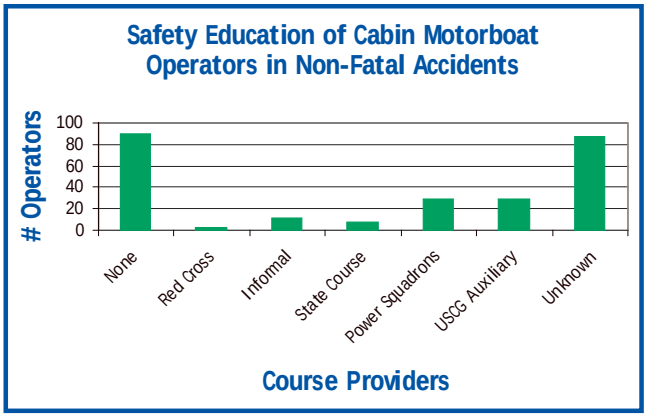
Appendix 2

Cabin Motorboats are usually the larger vessels over 21 feet in length. Our assumption is that these are usually more expensive boats, and many of the operators are more motivated to take a safety class since 25.7% of these operators indicate that they have taken a boating safety course. No operators involved in fatal accidents had taken a safety class



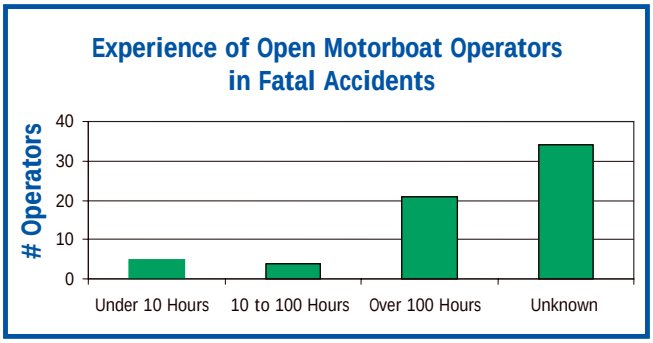


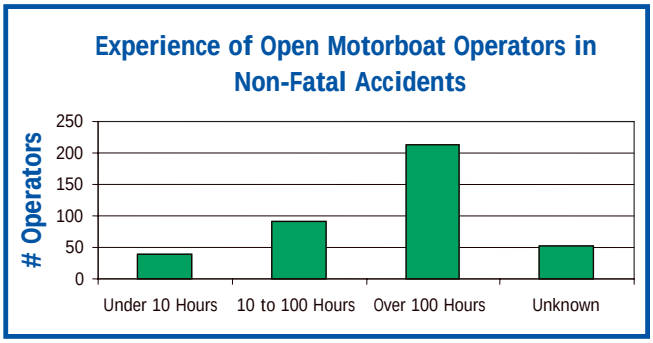


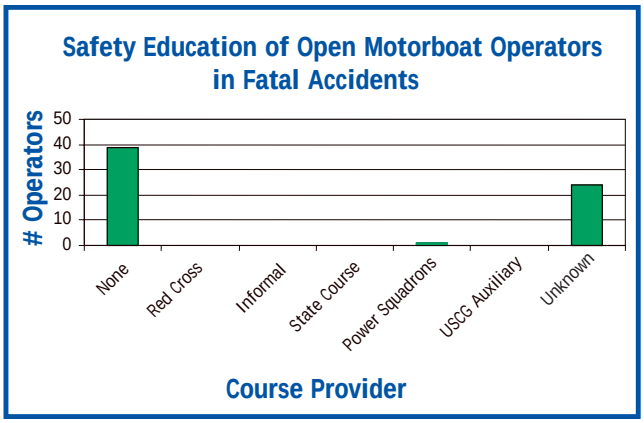


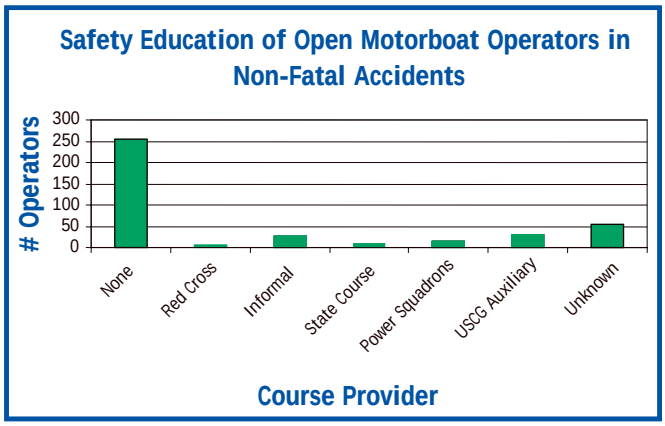
Recreational Boating Safety in Washington

Open Motorboats is a broad category which includes everything from a small open utility boat with a motor under 10 HP to large, open motor boats with over 400 HP engines. This category covers most of the boats used by fishermen. 13% of open motorboat operators say they have taken a formal boating safety education class. Only one of the operators in a fatal accident had taken a course.



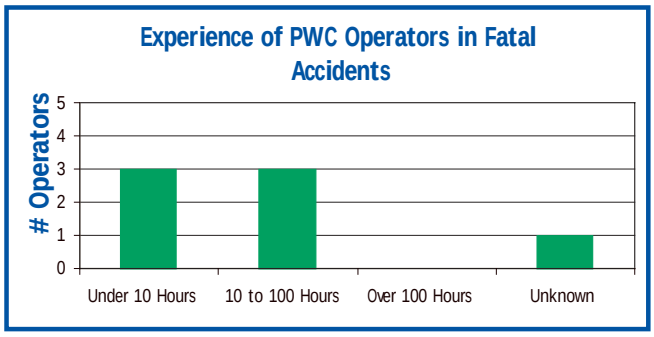


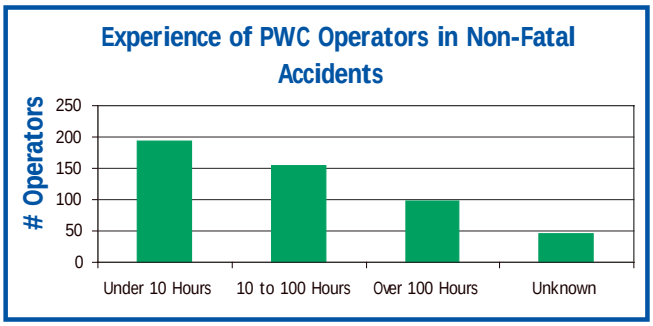


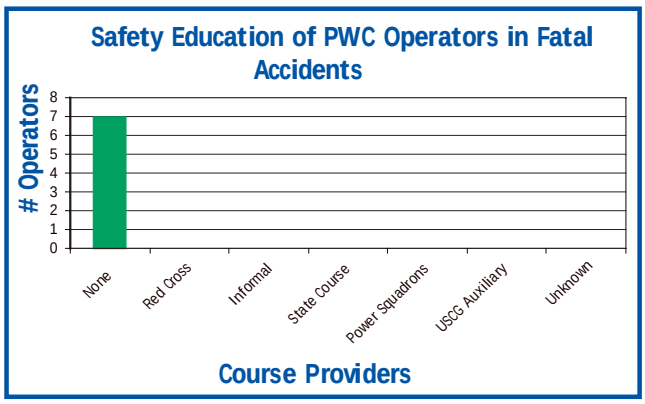


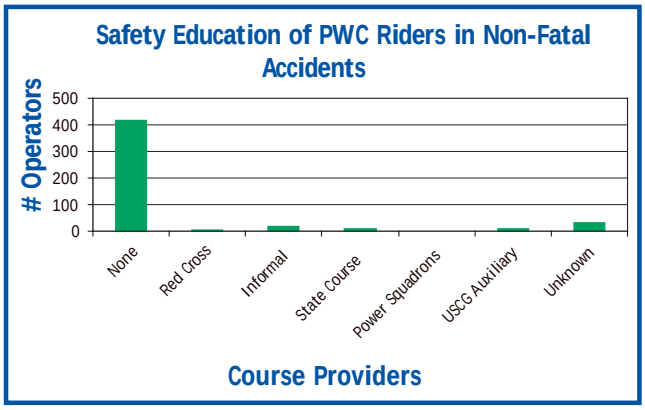
Appendix 2

Personal Watercraft (PWC) represents the newest type of vessels and have become very popular, very quickly. PWC's are mostly involved in collision type of accidents and not in fatality accidents. 4% of PWC riders report having taken a boating safety class. This type of vessel is unusual in that as experience increases both accidents and fatalities seem to drop off.



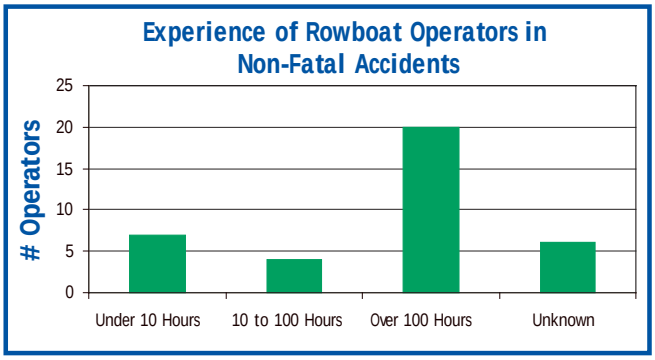


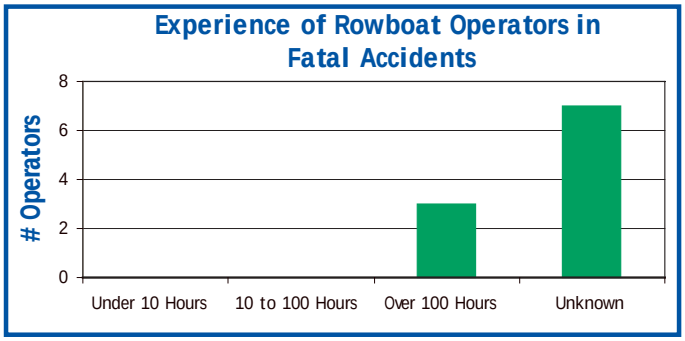


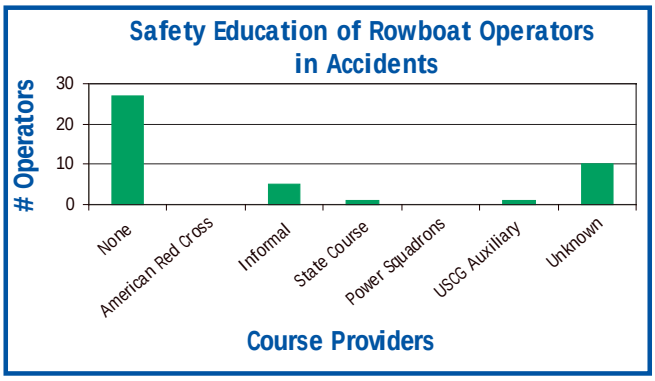


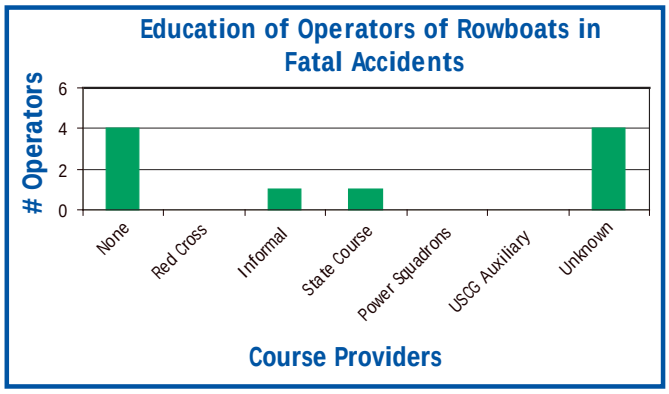
Recreational Boating Safety in Washington

Rowboats and utility boats are small, and usually manually powered boats that are often used for fishing. They are inherently unstable and contribute to fatalities more than to overall accidents. Of the 44 rowboat/utility boats in accidents, 10 were involved in fatalities. 5% of the operators of rowboat/utility boat operators indicated they had taken a formal safety class. Two of the operators in fatal accidents had taken a safety course.



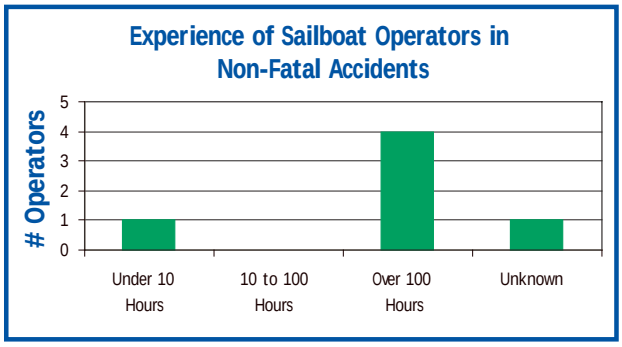


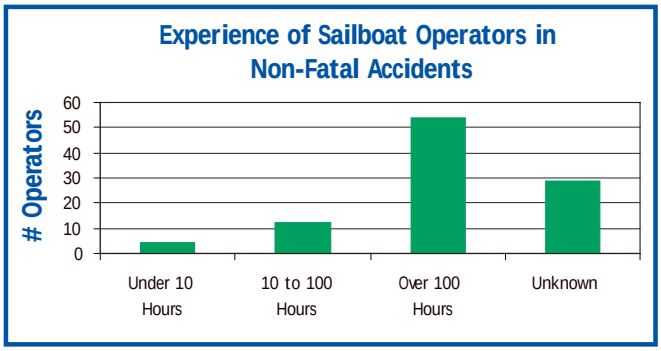


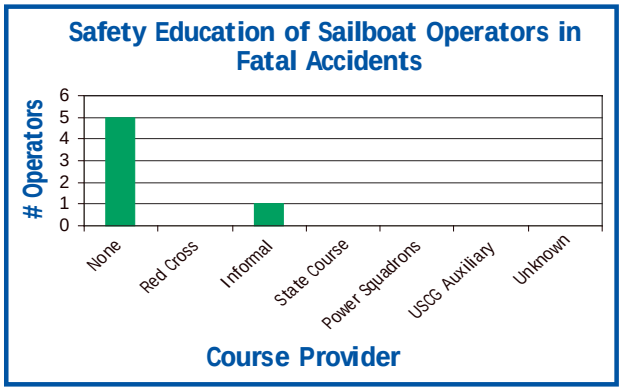


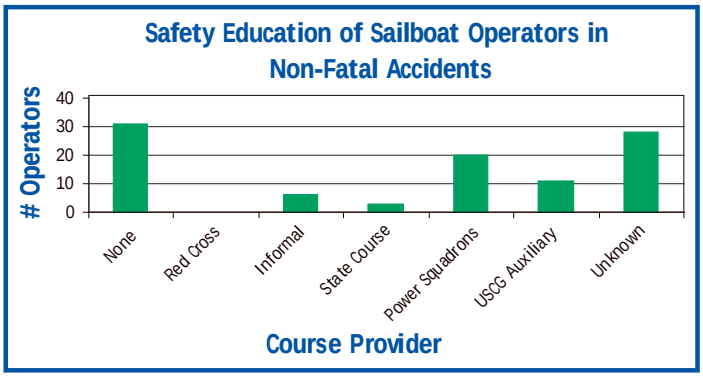
Appendix 2

Sailboats can be either large or small, ranging from small 6 to 8 ft to over 100 feet. As a group, more sailboat operators are likely to have taken a safety class than any other type of vessel. 32% of the operators involved in non-fatal accidents reported having taken a safety class. Even so, none of the operators involved in fatal accidents were identified as having had a safety course.



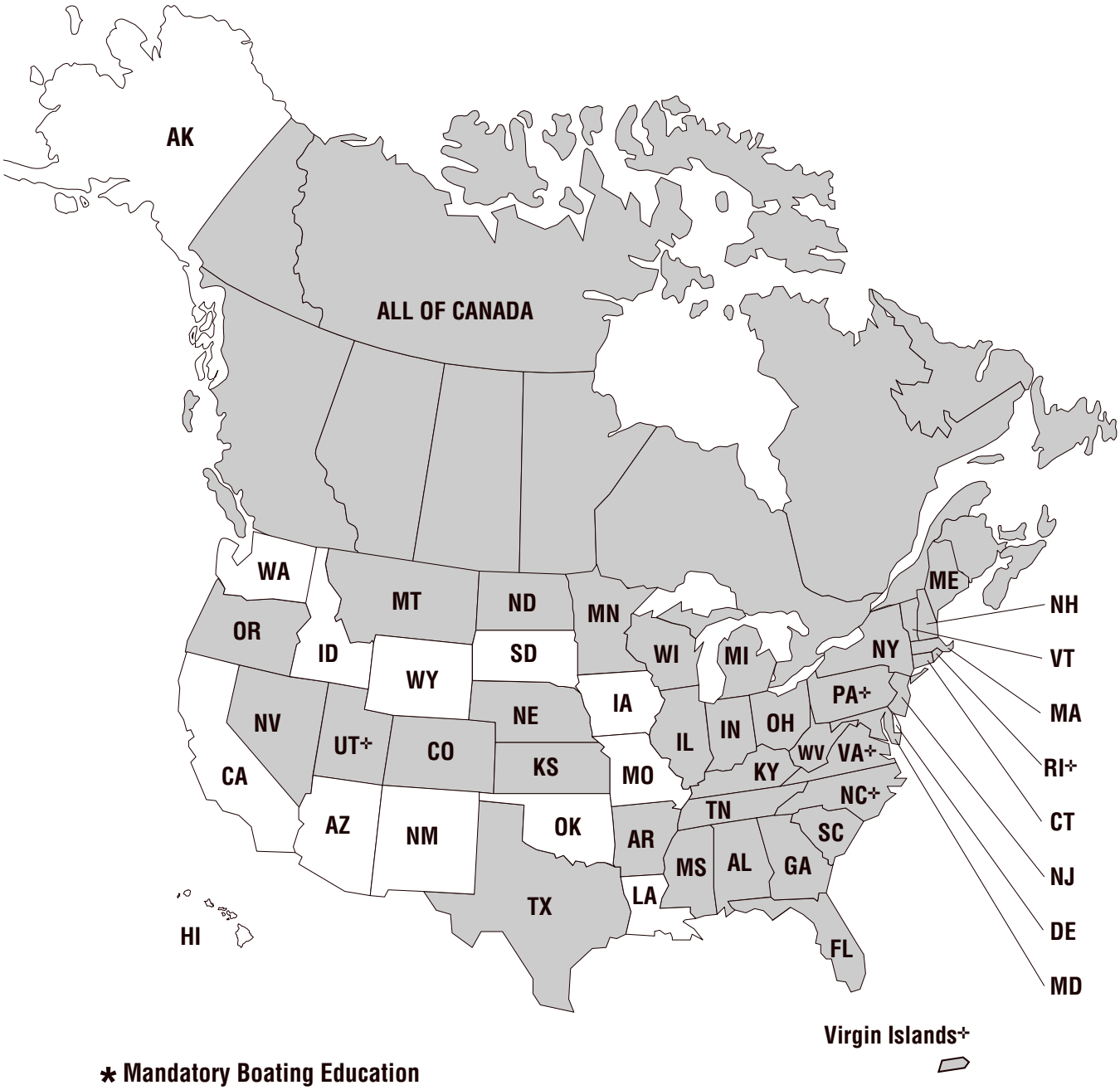






Appendix 3

States and Provinces with Some Form of Mandatory Boating Education*



* Mandatory Boating Education

- Age-Specific (i.e. 12-15, under 17, etc.)
- Phased-in by Date of Birth (i.e. Born after Jan. 1, 1973)
- Horsepower (some jurisdictions specify horsepower criteria in addition to age-specific or phased-in regulations)

✣ PWC only

Education Mandatory in Shaded Areas


SLOW
NO WAKE
5 MPH

Appendix 4

U.S. Coast Guard Security Update, 2003

The terrorist acts against the United States on September 11, 2001, and the recently heightened terrorist threat level have increased the need for safety and security measures in U.S. ports and waterways.

1) TEMPORARY SECURITY ZONES: In order to prevent further terrorist acts, the Coast Guard is establishing temporary security zones as follows:

- Extending 100 yards in the United States Territorial Waters around all cruise ships and tank ships that enter, are moored in, or depart from the San Francisco Bay and Delta ports, California. Effective until further notice.
- Extending 100 yards in the United States Territorial Waters around all high interest vessels (HIV's) that enter, are moored in, or depart from the San Francisco Bay and Delta ports, California. HIV's are vessels deemed by the Captain of the Port or higher authority as requiring protection, therefore they will be escorted by a Coast Guard or other law enforcement vessel with an embarked Coast Guard commissioned, warrant, or petty officer. Effective until further notice.
- Extending 25 yards in the U.S. navigable waters surrounding the piers, abutments, fenders and pilings of the Golden Gate Bridge and the San Francisco-Oakland Bay Bridge. Effective until 9/30/03. Any person who will fully and knowingly enters a Security Zone without permission of the Captain of the Port may be fined or imprisoned for committing a Class D felony. Associated vessels may be seized and held liable for any monetary assessments

2) NAVAL VESSEL PROTECTION ZONE: After 9/11/01, U.S. Coast Guard Pacific Area established Naval Vessel Protection Zones which provide for the regulation of vessel traffic in the vicinity of U.S. naval vessels. THE NAVAL PROTECTION ZONE IS STILL IN EFFECT!

- Do not approach within 100 yards of any U.S. naval vessel.
- You must operate at minimum speed within 500 yards of any U.S. naval vessel.
- Violations are a felony offense, punishable by up to 6 years in prison and/or up to $250,000 in fines.

3) COMMERCIAL TRAFFIC: Be sure you stay well clear of any large vessel whose movement is restricted by its size. Keep at least 500 yards (1/4 mile) from any commercial vessel. This is extremely important in crossing situations.

4) KEEP WELL CLEAR OF CRITICAL INFRASTRUCTURE AND OTHER PLACES OF INTEREST. These include, but are not restricted to entrances to tunnels, airports, power plants, water intakes, oil facilities, chemical facilities, fuel docks, and military bases. If you have any doubts about a particular spot being regarded as sensitive, assume that it is.

5) KEEP A LOOKOUT FOR UNUSUAL ACTIVITY. Be extra vigilant in the vicinity of sensitive areas, listed above. Examples of unusual activity include:

- Fishing/hunting in locations typically not used for fishing or hunting
- Any aggressive activities
- Unusual filming or diving activities, particularly close to a sensitive area
- Boats underway at night with no navigational lights in or around places of interest

6) REPORT UNUSUAL ACTIVITY. If you see any suspicious activity, notify the appropriate authorities.

- Suspicious activity on or near the water, contact the Coast Guard – (415) 399-3451
- Suspected terrorism plots or activities, contact the FBI – (415) 553-7400
- Suspected smuggling operations, contact US Customs – (800) 232-5378
- Suspected illegal immigration, contact Dept of Immigrations – (415) 844-5347
- For all emergencies, call 911

Appendix 5

National Association of State Boating Law Administrators

National Boating Education Standards

With updates as of January 1, 2003

Produced under a grant from the Aquatic Resources
(Wallop-Breaux) Trust Fund
Administered by the U.S. Coast Guard

In Memorial of V/C Carl Mahnken
U.S. Power Squadron and Key Member of the
Boating Education Standards Advisory Board

Boating Education Standards Advisory Board

John Malatak	U.S. Coast Guard
Fred Messmann	Education Committee Chair, NASBLA
Carl Mahnken	U.S. Power Squadron
Rod Allen	U.S. Power Squadron
Dan Maxim	U.S. Coast Guard Auxiliary
Virgil Chambers	National Safe Boating Council
Marty Law	Oregon State Marine Board
Emily King	Ohio DNR, Division of Watercraft
Harry Munns	American Sailing Association
Sarah Barker	NASBLA Staff

Carl Mahnken

In Consultation and Contract With

The Pennsylvania State University
College of Health and Human Development
School of Management, Restaurant and Recreation Management
by
J. William Hugg
Stuart P. Cottrell
Alan R. Graefe

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Appendix 5

Disclaimer

NASBLA and affiliated organizations do not undertake to verify the continuous adherence by courses or instructors to every applicable standard or guideline. Nor does the National Association of State Boating Law Administrators warrant, guarantee, or insure that compliance with these standards will prevent any or all injury or loss that may be caused by or associated with any person's use of boats, facilities, equipment, or other items or activities that are the subjects of these standards; nor does the National Association of State Boating Law Administrators assume any responsibility or liability for any such injury or loss.

Further, the National Association of State Boating Law Administrators hereby expressly disclaims any responsibility, liability or duty to affiliated courses, organizations, instructors, boaters or their families, for any such liability arising out of injury or loss to any person by the failure of such organizations, courses, or instructors to adhere to these standards.

Adapted from: American Camping Association. (1998). Accreditation Standards for Camp Programs and Services. American Camping Association: Martinsville, IN.

Appendix 5

The National Association of State Boating Law Administrators

Since its inception, the National Association of State Boating Law Administrators, Inc. has functioned effectively as the voice of the states and territories regarding state boating law enforcement and boating safety. Today, NASBLA coordinates approval of state and private boating education programs, promotes uniform boating regulations through the adoption of model acts and policies, develops methods to improve the nation's boating accident database, fosters cooperation between the U.S. Coast Guard and the states, and strives for the general advancement of boating safety. Since the implementation of the state assistance program, the U.S. Coast Guard has relied on NASBLA to assist in the efficient and effective management of the federal funds.

Membership in the association consists of state officials responsible for administering and/or enforcing state boating laws. "State" means a state of the United States, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, America Samoa, Northern Mariana Islands and the District of Columbia. Officers of the association consist of a President, Vice-President, Secretary-Treasurer, and an executive board composed of the officers, two other members-at-large, the immediate Past President, and the Presidents of the three regional boating administrators associations. The Board is augmented with an Executive Director and an Executive Secretary. Officers are elected annually and take office on the first day following the conference at which they were elected, and hold office until the last day of the conference at which their successors are chosen.

The association is recognized for its stewardship of recreational boating safety. For more than 35 years, NASBLA has worked closely with the U.S. Coast Guard, the States and others to insure that the intent of the congress to promote uniformity, reciprocity and comity among the various states was given priority. Testimony of this is the many resolutions and model acts that have been generated by the association. In doing this NASBLA brings to the table, highly qualified personnel in the fields of boating law enforcement, education, boating safety and on-the-water search and rescue.

Preamble

The purpose of these standards is to educate boating education professionals regarding the practices and procedures followed generally within the boating education community. That purpose is furthered to the extent that the standards provide a basis for accreditation of boating education courses by the National Association of State Boating Law Administrators (NASBLA). It is not the intention of The National Association of State Boating Law Administrators to attempt to include every practice or procedure that might be desirable or implemented within a boating education course since the conditions, facilities, and goals of all courses are not identical or uniform.

The accreditation programs of the National Association of State Boating Law Administrators are designed to be applied only to those boating education courses that are consistent with the stated definitions and eligibility requirements. Courses outside of these definitions or criteria are not subject to our standards and are not considered for accreditation.

Standards Development - NASBLA developed its minimum content for boating education courses over a decade ago. These standards have served as a guide for state, non-profit and commercial providers to follow in developing boating education materials. In July of 1998, NASBLA contracted with a research team anchored at the Pennsylvania State University to evaluate the existing guidelines and develop a new minimum "standard of care" for boating education. This new set of standards is intended to prescribe the minimum body of knowledge necessary to effect safe, legal, and enjoyable boating. In addition, the proposed standard of care is predicated on reducing risk in recreational boating based on empirical accident and boating violation statistics.

Relevant documents listed in the reference section of this document were reviewed and interviews were conducted with nationally prominent and recognized boating educators. A working draft of the standards was written and submitted to the Standards Advisory Committee for review and comment. Several more drafts of the standards were completed, each going through a revision process. In December of 1998, the Penn State team met with the Standards Advisory Committee for two days of review and comment. The result of that meeting was a draft set of standards to be validated and pilot tested in the second phase of the study.

Phase 2 involved three separate tasks carried out between January and August, 1999. . Task 1 solicited the input of almost 150 boating educators representing major national boating organizations. This survey asked boating experts whether or not each proposed standard should be included as a minimum boating education standard, as well as the relative importance of each standard. Task 2 involved a review of nine boating education course/texts using the draft standards. This task used volunteers who evaluated their own course materials against the standards, along with independent reviews by the research team and NASBLA representatives. The purpose of Task 2 was to simulate the NASBLA function of reviewing boating courses submitted to NASBLA for compliance with each of the National Boating Education Standards. Task 3 of the evaluation sought to understand how instructors, presented with the draft standards, dealt with the design, implementation, and teaching of a boating safety course using these standards. In this task the purpose was to gain a deeper understanding of the standards through intensive observations and discussions with boating educators using the standards. Each of the three tasks was structured to gain information that would be useful in revising the standards.

Briefly, the results of these three tasks showed a strong consensus among boating educators that the draft standards represent the minimum information that should be taught in an eight hour boating safety course. The evaluation uncovered several standards that should be moved from the recommended section to the required section. Also, there were many wording changes that increased the clarity of the standard or illuminated aspects of the standard not emphasized in the previous draft. The information gathered in this evaluation is extensive and is summarized in a separate detailed report submitted to NASBLA. The final step in the standards development process was another full day meeting with the Standards Advisory Committee to review the phase 2 findings and resulting standards. The current document presents the final standards, as approved by the Standards Advisory Board, approved by the Education Committee and overall membership of NASBLA on September 22, 1999.

Intended Audience - These standards were developed for use by boating education course instructors, boating education text authors, and other boating education professionals who intend to submit course materials for NASBLA review and accreditation. It is anticipated that materials submitted for NASBLA course accreditation based on these standards will require less revisions than similar materials submitted in the past. It is hoped that this document will clearly communicate with prospective authors what must be included to provide a minimum standard of care, resulting in a more efficient course review process.

Applicability and Definitions - These standards apply to courses for operators of recreational motorized boats and sailboats. It is recognized that there are different types of boating courses with different target audiences. These standards identify the core topics that must be covered in most courses, and this single set of standards replaces NASBLA's previous separate standards for general boating courses and PWC courses.

The standards use the term, "course," to refer to all components of a boating education course, including instruction, texts, supplemental materials, and tests. A boating course may be presented in various formats, including classroom instruction, home study, video, distance learning, CD-ROM, or any combination of these formats. "Boat" is used to refer to all types of recreational watercraft. It is expected that any unique words or terminology used in courses submitted will be clearly defined in the course materials.

MINIMUM Standards - These standards were intended to convey to organizations and individuals the **minimum body of knowledge that must be included in a short, 6-8 hour, boating education course.** Instructors, text authors, boating professionals, and organizations are encouraged to go beyond the standards when in their judgment and experience it assists the boat operator to boat more safely. In addition, the standards are intended to show just the minimum content of the course materials, not the sequence or organization of the material. Although the standards are organized in a particular way, course/text developers are welcome to organize their information as they prefer.

Required Materials for NASBLA Review - It is assumed that the standards will be met in various ways and that materials submitted to NASBLA may include course texts, supplemental texts, instructor guidelines or outlines, and handout materials. State-specific and localized information that is relevant to the particular course audience may be provided through any of these media (see standard 8.2 for the required content of this material). To assist in the determination of whether the standards are met, the learning objectives and exams must be included in the package of materials submitted to NASBLA for review.

Accuracy Requirement – It is mandatory that all information contained in course materials receiving NASBLA accreditation be factually correct.

Standards Revision - At this point in time procedures for the revision of the National Boating Education Standards are being developed. It is expected that any new proposed standards or revisions to the standards will be subject to the same rigorous review that the present standards have undergone.

Appendix 5

The National Boating Education Standards

NASBLA accredited boating education courses and texts will address at least the following minimum standards.

The Boat

Standard 1.1 - Boat Capacities

The course will describe how to determine acceptable loading based on locating and determining a boat's gross load capacity (total weight and # persons) from the boat capacity plate and horsepower recommendations.

Rationale - A boat operator must be able to avoid capsizing situations by adhering to boat capacity limits and properly distributing the weight in the boat for safe operation. Coast Guard accident statistics indicate that capsizing was the leading cause of boater fatalities in the last five years. Many capsizing incidents have resulted from overloaded boats.

Standard 1.2 - Boat Registration Requirements

The course will describe:

1. that all motorized boats and many other boats are required to be registered (check state requirements),
2. requirements for hull identification number,
3. the required certificate of number (registration documentation), and external display of numbers,
4. the requirements for federally documented vessels,
5. reciprocity regulations, and
6. registration requirements in the boat's state of principal use.

Rationale - In a recent survey of state boating law administrators (NASBLA 1998), 20% of boating citations were due to improper display of vessel registration numbers. Understanding the legal requirements for boat registration will help boaters to avoid unnecessary violations and resulting fines.

Boating Equipment

Standard 2.1 - Personal Flotation Device Types and Carriage

The course will describe the types of Coast Guard approved personal flotation devices (PFDs) and their respective uses, advantages, and disadvantages. The course will also describe the number and types of PFDs that must be carried on the boat according to applicable regulations.

Rationale - U. S. Coast Guard statistics consistently show that at least 85% of the people who died in boating accidents were not wearing PFDs. Nationally, carrying improper PFDs for the number and types of passengers on board is the second highest category of citations issued to boaters. Special attention must be given to the use of hybrid Type 5 inflatable PFDs and special restrictions for totally inflatable PFDs.

Standard 2.2 – Personal Flotation Device Sizing and Availability

The course will communicate that PFDs must be readily accessible and correctly sized for the persons using them.

Rationale - Capsizing and falls overboard accounted for 488 fatalities in 1997 – nearly 60% of all boating fatalities. Proper use of PFDs is essential for boater safety. The participant needs to understand how to adjust PFDs of various types and styles for themselves and other passengers.

Standard 2.3 – Wearing Personal Flotation Devices

The course must inform boat operators of the advisability of wearing PFDs at all times. The course must emphasize the need for boat operators to be alert to changing boating conditions and to inform all persons on board they should be wearing PFDs in dangerous conditions such as high boat traffic, severe weather, dangerous water conditions, dangerous local hazards, distance from shore, operation at night, boating alone, etc. The course will address the difficulty of putting PFDs on in the water.

Rationale - Nine out of 10 drowning victims in 1997 were not wearing lifejackets. It is essential that boater safety education repeatedly emphasize the importance of wearing PFDs, along with constant vigilance and attention to changing conditions and adapting behavior to those conditions. Hazardous waters and weather are major causes of deaths in boating accidents. In 1997 these two factors caused nine percent of reported boating accidents but accounted for 21% of all boating fatalities.

Standard 2.4 - Personal Flotation Device Serviceability

The course will describe the characteristics of serviceable (good) PFDs and when to replace PFDs due to excessive wear or damage. Special attention must be given to the maintenance of inflatable PFDs as per manufacturer recommendations.

Rationale - PFDs are often subjected to rough handling, ultra violet sunlight, and improper storage. These conditions reduce the ability of the PFD to perform its intended function. The operator should be able to distinguish serviceable PFDs and identify the key conditions that necessitate replacing the PFD. Regular maintenance checks are essential to ensure the proper functioning of all PFDs and especially the inflatable PFD.

Standard 2.5 - Fire Extinguishers

The course will describe the legal requirements for fire extinguishers on recreational boats, the kind of fire extinguishers needed for different types of fires, the importance of placing fire extinguishers in a readily accessible location, and the need for regular inspection of fire extinguishers.

Rationale - U.S. Coast Guard requirements specify the number and types of fire extinguishers that must be carried for class "B" fires on boats of various sizes. Boat operators must be able to respond quickly in the event of fire. Anticipating the emergency by outfitting the vessel with the appropriate equipment and understanding how to use it reduces exposure to danger.

Standard 2.6 - Back-Fire Flame Control Device

The course will describe the purpose and maintenance of a back-fire flame control device (a required device on all enclosed engines with a carburetor).

Rationale - The U. S. Coast Guard requires that boats with gasoline engines be equipped with an acceptable means of backfire flame control.

Standard 2.7 – Ventilation Systems

The course will discuss the ventilation system requirements for different types of boats.

Rationale - The U. S. Coast Guard requires that all recreational boats which "use gasoline engines for electrical generation, mechanical power or propulsion" must be equipped with a ventilation system. Gasoline vapors can collect in the bilge and explode. "Boat owners are responsible for keeping their boats' ventilation in operating condition."

Standard 2.8 – Navigation Light Equipment

The course will cover the navigation light requirements for recreational boats from applicable sections of Navigation Rules (Part C) as summarized in Federal Requirements and Safety Tips for Recreational Boats. (Also see standard 5.3.7)

Rationale - Recreational boats are required to display navigation lights between sunset and sunrise and during periods of reduced visibility. Boating accident statistics indicate that nighttime collisions account for a significant proportion of total boat collisions. Boat operators who know and follow navigation and anchorage light requirements can help reduce nighttime collisions. Many of the navigation rules are devoted to navigation lights. The Coast Guard pamphlet, Federal Requirements and Safety Tips for Recreational Boats, provides a summary of the most relevant lighting requirements for recreational boaters.

Standard 2.9 - Sound Signaling Equipment

The course will describe the types and use of sound producing devices required on recreational boats. (Also see standard 5.3.6)

Rationale - Sound devices are required equipment on recreational boats. In certain boating conditions, boat operators must be able to alert other boats to their presence or operation intentions. The number one type of reported boating accident is "collision with another vessel," underscoring the importance of carrying the appropriate sound warning equipment on board.

Also see Standard 5.3.10 – Visual Distress Signals

Trip Planning and Preparation

Standard 3.1 - Checking Local Weather And Water Conditions

The course will describe how to make informed boating decisions based on forecasted local weather and water conditions. It will also describe dangerous weather conditions such as strong wind, storms, lightning, hurricanes, fog, and their importance in trip planning.

Rationale - Capsizing continues to be reported as one of the leading or contributing causes of boater fatalities. Boat operators must be able to use weather information to make judgments aboutprobable water conditions and decisions about whether to continue with the float plan. Oftenpoor weather in combination with other unexpected emergencies accelerates the danger toboat operators and their passengers.

Standard 3.2 - Checking Local Hazards

The course will describe how to obtain information about local hazards that may impede the operation of a recreational boat.

Rationale - Boating accidents continue to indicate that a lack of understanding of local conditionscontributes to boating fatalities. Hazards requiring special attention include: low-head dams, rapids, sudden winds, tides, currents, white water, overhead cables, bridges, waves, and heavy boating traffic.

Standard 3.3 - Filing a Float Plan

The course will describe the importance of notifying someone of your boating plans and the basic information that should be included.

Rationale - In the event of an accident, rescue authorities can respond much faster and in a more focused way if a float plan has detailed information about the expected destination, boat description, course, time of departure, and time of expected return.

Standard 3.4 - Boat Preventive Maintenance

The course will communicate the need for regular inspection and maintenance of the boat and its key components (e.g., through-hull fittings, motor, electrical system, fuel system).

Rationale - Keeping a boat in good working order is as much a part of the boating experience as boating itself. Almost all elements of safety revolve around the fact that the boat has been maintained and all its parts and systems are able to perform as they were designed. Negligence in this area will eventually lead to an unsafe or disastrous experience. In the last few years, 27% of vessels in reported accidents involved boat equipment/maintenance related factors. In addition, 34% of boating citations issued were due to boat equipment-related violations.

Appendix 5

Standard 3.5 – Transporting and Trailering

The course will describe procedures to prevent trailering accidents and resulting injury and property damage. The course will cover safe trailering procedures including: 1) safe towing preparation, 2) road handling factors when pulling a trailer, 3) launching a boat, and 4) retrieving a boat from the water.

Rationale - The majority of recreational boats in the U.S. are trailered to and from the water. A boat trailer is one part of the entire boating package, which includes boat, trailer, hitch, and towing vehicle. Neglecting the trailer's maintenance can result in damage to a boat, the towing vehicle, or both, as well as create a hazard for other boats and vehicles.

Standard 3.6 - Fueling Procedures

The course will provide information on proper procedures for fueling, ventilation during fueling, and protection of the marine environment during fueling.

Rationale - Gasoline and gasoline vapors are extremely explosive. Ignition of spilled fuel or vapors continues to cause boating accidents, injuries, and fatalities. Following safe fueling procedures reduces the opportunity for gasoline explosions.

Standard 3.7 - Pre-Departure Checklist & Passenger Communication

The course must describe the importance of using a pre-departure checklist and conducting an onboard safety discussion with passengers. Passengers should be informed about the location of PFDs, fire extinguishers, flares, first-aid kit, discharge and management of waste procedures, anchoring procedures, emergency radio operation (if applicable), storm/rough weather procedures, line handling, emergency boat operation, and falls overboard procedure.

Rationale - The mental and physical rehearsal of procedures for various boating emergencies can reduce the time passengers, crew and operators are exposed to dangerous conditions and increase the efficiency of rescue operations. Boat operators should inform passengers of relevant safety informa tion to prevent accidents, increase safety, and reduce response time in the event of an emergency.

Marine Environment

Standard 4.1 – Environmental Laws and Regulations

The course will describe the environmental laws and regulations concerning littering (e.g., garbage and plastic), waste management plans, and display of information placards (where applicable) and aquatic nuisance species.

Rationale - Boat operators should remember that water pollution ruins not only the aesthetic beauty of the area, but harms human life, marine life and damages boating equipment. The degree and amount of garbage adrift on our coastal waterways continues to increase. Plastic, which many species mis take as food, is a big threat to marine life. Birds are found entangled in plastic rings, fishing line, or nets. Various federal and state laws prohibit throwing, discharging or depositing any sort of refuse matter in the waters of the U.S. Other acts require boats of various sizes to display placards and keep records of their refuse disposal. A person who violates any of the requirements is liable to civil penalties, fines, and imprisonment. Regional, state, and local laws may also have specific re strictions on refuse disposal.

The spread of aquatic nuisance species (ANS) by recreational boaters is an increasing concern across the country. Milfoil, zebra mussels, and other ANS are being increasingly regulated by states to prevent their spread, with specific regional, state and local laws.

Standard 4.2 - Human Waste Disposal

The course will describe the proper procedure for disposal of human waste from recreational boats and how to identify no discharge zones and pumpout station locations.

Rationale - It is illegal to discharge raw sewage from a vessel within territorial waters (within the threemile limit), the Great Lakes, and navigable rivers. Recreational boats are not required to be equipped with a toilet. However, the Clean Water Act requires that, if a toilet is installed, it must be equipped with a Coast Guard approved and operable Marine Sanitation Device (MSD).

Standard 4.3 – Disposal of Toxic Substances

The course will describe procedures for the prevention of spills and improper disposal of toxic substances such as fuels, oils, and cleaning products into the marine environment and the associated fines for non-compliance.

Rationale - Oil residue tends to build up in the bilges of boats and can easily be discharged directly in the water. The federal Water Pollution Control Act prohibits the discharge of oil or hazardous substances into navigable waters. Powerboats must have the capacity to retain oily mixtures on board and to transfer them to an approved reception facility.

Appendix 5

Safe Boat Operation

Standard 5.1 - Operator Responsibilities

The course will describe a boat operator's ultimate responsibility for safety and all activity aboard the boat. This responsibility extends to other water users and includes: controlling boat speed, obeying no wake/limited wake restrictions, refraining from careless, reckless, or negligent operations on the water, controlling boat noise, observing and operating in accordance with homeland security measures, and other general boater courtesy.

Rationale - Boaters need to respect the rights of other people who live, recreate, or work on the water. Approximately 80% of all reported boating accidents involve operator controllable factors. The most common types of such factors include operator inattention or carelessness, operator inexperience, excessive speed, and failure to maintain a proper lookout. According to the Nighttime Boating Accident & Fatality Study, operator error is to blame for the majority of nighttime boating accidents and fatalities.

Negligent operation of a recreational boat which endangers lives or property is illegal. Nationally, 32% of boating citations in recent years were due to improper boat handling (e.g., negligent operation, excessive speed, operating in restricted areas, no wake area violations, collisions, going too fast at night, etc.).

In light of new security measures brought about by the events of September 11, 2001, it is critical that all boaters be aware of and comply with new homeland security measures set forth by federal, state and local governments. These should include, but are not limited to, keeping a safe prescribed distance from military and commercial ships and avoiding commercial port operations areas, observing all security zones, following guidelines for appropriate conduct such as not stopping or anchoring beneath bridges or in a channel, and observing and reporting suspicious activity to proper authorities.

Standard 5.2 - Influence of Drugs and Alcohol on Boat Operation

The course will describe the effects of drinking alcohol or using drugs while boating, and the boating laws pertinent to operating a boat while under the influence.

Rationale - One-third of all boating fatalities are drug or alcohol related. It is illegal to operate a boat while under the influence of such substances. Further, according to the Nighttime Boating Accident & Fatality Study, alcohol was by far the leading contributing cause (53%) of nighttime boating accidents and fatalities.

Standard 5.3 - Navigation Rules of the Road

The course will describe safe boating operation and good seamanship, including at least the following navigation rules:

5.3.1 - Definitions relevant to understanding the navigation rules [Navigation Rule 3]
5.3.2 – Rule of responsibility (to act in a reasonable and prudent manner consistent with the ordinary practices of recreational boating) [Navigation Rule 2]
5.3.3 – Proper lookout [Navigation Rule 5]
5.3.4 – Safe speed [Navigation Rule 6]
5.3.5 – Collision avoidance rules [Navigation Rules 7, 8, 11-18]
5.3.6 – Operation within narrow channels [Navigation Rule 9]
5.3.7 – Sound signals [Navigation Rules 32-37]
5.3.8 – Navigation light display and recognition [Navigation Rules 20-25]
5.3.9 – Restricted visibility [Navigation Rule 19]
5.3.10 – Visual distress signals [Navigation Rules 36-37]
5.3.11 – Rendering Assistance [Chapter 23]

Rationale: - According to 1997 boating accident statistics, "collision with another vessel" was the most reported type of accident, resulting in 1,309 injuries, 80 fatalities, and 7.3 million dollars in property damage. "Excessive speed" and "no proper lookout" were the third and fourth most common factors in boating accidents involving operator controllable factors. The Navigation Rules were designed to reduce accidents by standardizing boat navigation. Various laws require recreational boaters to operate according to established rules such as those mentioned above. More than two-thirds of boating accidents involving operator controllable factors are caused by violations of one or more of these navigation rules.

Standard 5.4 - Aids to Navigation

The course will describe the Federal U.S. Aids to Navigation (USATONS) and the Uniform State Waterway Marking System (USWMS). The course must provide information about regulatory/informational markers (identified by orange bands on the top and bottom of each buoy) used to advise of situations, dangers, or directions indicating shoals, swim areas, speed zones, etc.

Rationale - Citations are regularly issued due to failure to obey regulatory markers. In order to navigate safely from place to place on the water, boat operators must depend on road signs just as we do on land. Aids to navigation are the road signs of the water. There are two systems of marking the waterways in the United States – U.S. Aids to Navigation (USATONS) and the Uniform State Waterway Marking System (USWMS). USATONS is a system prescribing regulatory markers and aids to navigation that mark navigable waters of the United States. USWMS is a system that prescribes regulatory markers and aids to navigation for navigable state waters. The USWMS may also mark the non-navigable internal waters of a state.

Note: Effective July 20, 1998, the United States Coast Guard commenced a five-year phased-in merger of the Uniform State Waterway Marking System with the United States Aids to Navigation System. This merger eliminates distinctions between the two systems and will ultimately create safer, less confusing waterways.

Appendix 5

Standard 5.5 - Docking and Mooring

The course will describe common practices for docking and mooring a boat relative to boat size, type of boat, location, weather, and current.

Rationale - Significant boat/property damage, accidents and injuries result from docking and mooring of boats in marinas and boat ramp areas, particularly in adverse weather conditions. Docking techniques vary depending on wind, current, location, degree of boat traffic in the harbor, type of boat, size of boat and skills/abilities of the boater and crew.

Standard 5.6 - Anchoring

The course will describe the selection of anchors, related ground tackle, and their use for different types of boats in various boating conditions. The course must describe procedures for anchoring, use of anchors as safety devices in emergency situations, and the hazards of stern anchoring.

Rationale - Anchoring skills and decisions of where to anchor can make the difference between a successful or unsuccessful boating experience. Significant property and environmental damage can occur when improperly anchored boats slip anchor and drift into reefs, boats, marinas, or run aground.

Emergency Preparedness

Standard 6.1 - Rendering Assistance

The course will explain that, according to the Navigation Rules, boat operators are required to render assistance to a boat in distress to the extent they are able. (Also see standard 5.3.11)

Rationale - In the event of an emergency, individuals in charge of a vessel are required to provide assistance so far as they can do so without serious danger to their own vessel or theindividuals on board their vessel. Assistance from other boaters can reduce the loss of life, injury or property damage resulting from boating accidents.

Standard 6.2 - Capsizing Emergencies

The course will describe how to prevent and respond to capsizing emergencies. These responses will include at least the following: donning lifejackets, taking a head count, staying with the craft when appropriate, signaling for assistance, using improvised floating aids, and initiation of procedures to recover people in the water.

Rationale - Every year, capsizing emergencies are the leading cause of boating fatalities. More significantly, in nearly half of the capsizing emergencies there was at least one fatality. These statistics underscore the need for boater education courses to stress the proper response/action in a capsizing emergency.

Standard 6.3 - Falls Overboard Emergencies

The course will describe procedures for preventing and responding to falls-overboard, including the proper response of persons on board for retrieval of a person in the water.

Rationale - Falls overboard are the second leading cause of boating fatalities. In 1997, 30% of total boating fatalities (243 deaths) resulted from falls overboard situations. Overloading, passenger movement on smaller crafts, and standing up contribute to many of the falls overboard accidents.

Standard 6.4 - Hypothermia Prevention

The course will describe the conditions under which hypothermia is likely to occur as well as its signs, symptoms, and prevention.

Rationale - Boaters have a much greater risk of dying when involved in a cold water immersion accident. Boaters' risk of dying increases with colder water temperatures. Sportsmen who hunt or fish from boats in cold weather are at greater risk of fatalities from capsizing or falling overboard. Water temperature varies by season and location.

Appendix 5

Standard 6.5 - Fire Emergency Preparedness

The course will describe procedures to prevent and respond to boating fires such as proper use of fire extinguishers and basic knowledge of fire suppression principles.

Rationale - The potential for catastrophic emergencies from fire requires that boat operators take measures to prevent and be prepared to deal quickly and efficiently with fires. A key to understanding fire suppression is to know that eliminating one of the fire's key ingredients, fuel, oxygen, or heat, can extinguish the fire.

Standard 6.6 - Running Aground Prevention and Response

The course will describe how to prevent and respond to running aground for recreational boats.

Rationale - In 1997, groundings accounted for 15 fatalities, 217 injuries, and $1.3 million in property damage. Preventing running aground is an important boat operator competence. Following proper procedures in the event of a grounding can reduce or minimize fatalities, boat damage, submerged object damage, and responses by public and private entities for salvage operations.

Standard 6.7 - Accident Reports

The course will describe what kinds of boating accidents require an accident report as well as how, when, and where to file the report.

Rationale - Accident reports are legally required when the accident involves: 1) loss of life; or 2) personal injury requiring medical treatment beyond first aid; or 3) property damage in excess of $500.00; or 4) complete loss of the boat. Proper filing of accident reports provides information that can be used to assist boating safety professionals to address the most serious concerns to boater safety.

Standard 6.8 - Boating Accident Report Form

The course will include a sample accident report form, which can be included in the textbook or as a separate handout.

Rationale - U.S. Coast Guard reports indicate that only 5 to 10 percent of non-fatal boating accidents are reported. Most accidents are not reported because of ignorance of the law and difficulty in enforcing the law. Every effort to assist boaters to report accidents may increase the rate of compliance in reporting accidents.

Other Water Activities

Standard 7.1 – Personal Watercraft and other Jet Propelled Watercraft

The course will state that a Personal Watercraft is defined as a boat and must observe all boating regulations. It must describe the unique characteristics of Personal Watercraft (PWC), including at least the following topics:

7.1.1 – Operational characteristics of PWCs , including steering, stopping and stability of PWC
7.1.2 – Off- throttle steering
7.1.3 – PWC load capacities as per manufacturer recommendations
7.1.4 – Re-boarding a PWC
7.1.5 – The purpose and use of a Lanyard/Cut (Shut) off switch
7.1.6 – The purpose and use of a fuel reserve tank
7.1.7 – Laws and regulations
7.1.8 – Accident prevention
7.1.9 – Noise control
7.1.10 – Hours of operation

Rationale - Recreational boaters share waterways with personal watercraft or may themselves be operators of personal watercraft. Understanding the handling characteristics of personal watercraft can help keep adequate navigational distances to limit collisions and fatalities. PWC sales are growing faster than any other type of recreational boat, accounting for 30% of all sales. Of the 4,555 injuries from boating accidents in 1997, 40% involved personal watercraft. In addition, 27 more fatalities were reported with the use of PWCs in 1997 than in 1996, for an all time high of 84 fatalities. For these reasons, special attention needs to be addressed to PWC accident prevention.

Each PWC model has its own unique characteristics. New operators must read their owner's manual to understand the characteristics of their particular PWC. Knowing how to effectively handle a PWC also takes practice. New operators should practice their skills with an experienced operator who can guide them on controlling the PWC and making safe boating decisions.

PWCs operate differently than other boats. Releasing the throttle completely eliminates the ability to steer the craft. This is an important operating characteristic that is difficult for novice operators to conceive, particularly in situations of potential collisions. PWC are highly maneuverable. The jet drive propulsion system is extremely responsive to slight turns of the handlebars. The responsive ness in maneuvering encourages operators of PWCs to try unusual stunts. These actions can push the operators to attempt maneuvers that are dangerous and beyond the safe operation of the PWC.

Operators must be able to re-board the PWC in deep water after falling off. This is most easily done from the rear (stern) of the craft. This maneuver is more challenging when the operator is tired. The weight of the person re-boarding and the stability of the model PWC being used also affect the ease of re-boarding.

Many states and local areas have laws and regulations specific to PWC operation and safety, including laws that deal with the preservation of the environment. Operators must understand these

regulations in order to boat safely and legally.

PWC have special operating concerns that relate to the type of accidents these craft are most commonly involved in. A review of these accidents and how they could be prevented should be provided. For example, a proper lookout must be maintained when turning (look all around and behind before turning). Many accidents involving PWCs are caused by operators who do not own the PWC.

Making excessive noise is one way to make PWC presence on the water unpopular. PWC operators should avoid operating continuously in one area and should stay a reasonable distance from home and cottage owners trying to relax and enjoy the waterfront.

PWCs are not equipped with lights and, according to manufacturer recommendations, are not intended for nighttime use. Many states and localities further limit the hours of operation of PWCs.

Standard 7.2 - Water Skiing

The course will describe procedures to follow when pulling water-skiers or operating in the vicinity of water-skiing or other activities using towed devices.

Rationale - The forces generated by water skiers and their possible trajectory in a fall necessitate that each boat maintain as much distance as possible with a minimum of a 200-foot wide "skicorridor" (100 feet on either side of the boat). "Skier mishaps" constituted the fifth most common type of boating accident as measured by total boats involved (445 boats in 1997) and injuries were reported in all but one of these accidents.

Standard 7.3 - Diving and Snorkeling

The course will describe how to recognize a diver down flag and the legal requirements for operating a boat in the vicinity of snorkeling or scuba diving activities. Rationale – Recreational boats can present a hazard to divers in the water. Federal and state navigation rules may require that diving flags be displayed during diving activities. Flags can help prevent injuries by informing boat operators to keep a respectful distance.

Standard 7.4 - Hunting & Fishing

The course will inform people who fish and hunt from boats that they are boaters and need to follow safe boating practices. Information must be provided about accident risks unique to this group of recreational boaters.

Rationale - Fishermen and hunters often don't consider themselves boaters and thus pay little attention to learning and observing boating safety rules. In a recent survey, 50% of those who purchased boats say they bought them to go fishing. Approximately one-third of national boating fatalities occurred while people were fishing from a boat. Likewise, more hunters die each year from drowning and the effects of hypothermia than from gunshot wounds. Many water-based hunting and fishing accidents occur when a hunter reaches for a decoy, or the boat capsizes from an unbalanced load, or a person falls overboard while standing up.

Boating Education Practices

Standard 8.1 - Continuing Education

The course will outline the need for additional boating safety education and staying informed of changes in boating safety requirements.

Rationale - It is important for boat operators to understand that one of their responsibilities is to keep up-to-date with new developments in boating laws and safety information. State laws vary with regard to licensing, equipment requirements, accident reporting procedures, etc. Boating equipment and safety information available to boat operators is constantly changing and improving. Boat operators who stay abreast of these changes will be ready for new situations, thus improving their own boating enjoyment as well as the safety of all boating participants.

Standard 8.2 - State Specific Boating Information

The course will contain (as part of the text or a separate handout) state specific information in regard to boating laws/regulations and local boating conditions. The course will include the following topics as applicable:

8.2.1 - registration and titling requirements such as number of years registration decals are valid, expiration date of registration, decal placement.
8.2.2 - laws for required wearing of PFD's for children, certain types of boats, and for special boating activities such as personal watercraft, skiers and others being towed.
8.2.3 - additional equipment requirements such as anchor, lanyard, bailing devices, visual distress signals.
8.2.4 - mufflers and noise levels.
8.2.5 - requirements for waste discharge, no discharge zones, and litter laws.
8.2.6 - special requirements for mandatory education, licensing, rental operation, and proficiency test certifications.
8.2.7 - age/horsepower restrictions and adult supervision requirements for children.
8.2.8 - laws further defining careless, reckless, unsafe, and negligent operations such as becoming airborne and operating less than specified distances behind a water skier.
8.2.9 - boat speed limits and operation in zoned and restricted areas.
8.2.10 - laws on operating under the influence of drugs and alcohol such as implied consent and BAC levels.
8.2.11 - law enforcement officer authority and boater responsibility to comply.
8.2.12 - boat accident reporting requirements.
8.2.13 - a state approved boating accident report form.
8.2.14 - other laws or regulations as required by the state approving authority.

Rationale - Although course materials intended for national distribution do not need to include state specific information, it is assumed that sponsoring boating organizations have procedures in place to assure that instructors provide supplemental materials and instruction to meet the intent of this require ment. For state courses, the relevant state specific information must be included in the course materials.

Appendix 5

Course Format and Testing Requirements

Standard 9.1 – Boat Operator Knowledge Course Formats

The course submitted for NASBLA review may be in any format that meets the standards as long as it can be reviewed easily by NASBLA. These may include but are not limited to classroom instruction, distance learning, or self-study programs.

Rationale - After extensive review of the relevant educational research literature, the overwhelming body of research suggests that there are significant differences in knowledge acquisition between traditional classroom formats and distance learning or self-study programs. Distance learning is thought of here as a wide range of learning formats usually involving the use of technology that includes Internet courses, tele-conferencing, and interactive video. Self-study programs can be home study courses and are usually thought of as an individual taking the initiative to learn material at their own pace. Consultations with researchers in the field confirmed that boat operator knowledge could be learned in many ways.

Any well designed course format for learning boat operator knowledge that results in the individual acquiring the essential knowledge is appropriate to submit for NASBLA review.

Standard 9.2 – Boat Operator Knowledge Exams

In order to receive NASBLA approval, all exams, whether administered as part of a course of study or as independent exams, must be submitted for review.

9.2.1 – The exam must be well designed and comprehensive in covering NASBLA's standards for boat operator knowledge. Well designed comprehensive exams assess boat operator knowledge equally well as an independent exam or as an exam at the end of a course.

Rationale - Well-designed comprehensive exams, whether administered as part of a course of study or independently as a challenge test, are equal. Experts in educational testing recommend that once exam standards are established and an exam constructed, then that exam equally measures boat operator knowledge however it was obtained. A well designed exam has a variety of types of questions and covers the entire body of knowledge as outlined by the National Boating Education Standards. Certain standards carry more importance and should receive more attention within the exam. At first, NASBLA will use experienced boating educators to review exams to determine validity and will eventually consider adopting additional review procedures that will increase the quality of boat operator knowledge exams nationwide.

9.2.2 – Each exam submitted for review must be accompanied with a plan that explains how the test administrator will seek to maintain exam integrity. The plan must address security issues commensurate with the purpose of the test and perceived opportunity to commit exam fraud.

Rationale - It is essential that test security be designed to be appropriate for the exam purpose and the context of the test. Exam security plans might address procedures such as: confirming the identity of the

test taker, randomizing test items, using different versions of an exam, observing test takers during the exam, protecting the security of the test item answers, using distinctive, hard to duplicate certificates, maintaining test taker records, etc. Rather than mandate a single exam security procedure for all examinations regardless of format or context, reviewing exam security plans provides NASBLA with the opportunity to determine appropriate levels of security for varying levels of exam circumstances. Exam security can be thought of as an escalating series of procedures that respond in kind to potential threats to exam integrity. Experienced boating education experts that are asked to review exam security plans will determine these judgements.

Appendix 5

Recommended Boating Safety Information

The following items contain recommended course content but are not considered part of the minimum standards for boater education courses.

R1 – Boat Types and Uses

The course should describe the common types of recreational boats, common hull designs, and their performance in various types of boating situations.

Rationale - Boat operators should understand the handling characteristics of various boat types so as to match the boat to the water and planned activity. Boat performance characteristics as determined by design features should be known to a boat operator and factored into their boating decisions.

R2 - Boating Terms

The course should describe commonly used boating terms in addition to those terms required to follow the Navigation Rules. (see also standard 5.3.1).

Rationale - Knowing common boating terms could save time and confusion in the event of an emergency by enabling boat operators to secure the situation efficiently and communicate clearly.

R3 - Boat Theft Prevention

The course should contain information that addresses actions the boat owner can take to deter or prevent boat theft.

Rationale - Statistics indicate that boat theft is increasing. Boat owners can deter theft and assist law enforcement authorities through their actions and observations.

R4 - Communication Procedures

The course should describe the protocol and use of VHF marine radios and other equipment for contacting the Coast Guard or other rescue personnel in the event of a boating emergency.

Rationale - In the event of an emergency the boat operator must be able to respond quickly and communicate his or her situation to relevant authorities. Understanding how to use marine communication pro cedures is an essential element of responding to emergencies.

References Consulted

BOAT/U.S. Foundation for Boating Safety. (1995). Nighttime Boating Accident and Fatality Study. Alexandria, VA.

Canadian Coast Guard. (1997). Boating Safety Course Standards Draft Report. Ottawa, Canada.

Connecticut Department of Environmental Protection. (1998). Boating Basics: A Guide to Responsible Boating. Outdoor Empire Publishing, Inc.: Seattle, WA.

Florida Marine Patrol & Game and Fresh Water Fish Commission. How to Boat Smart: Florida Boating Safety Course. Tallahassee, FL.

National Association of State Boating Law Administrators. Minimum Standards for Boating Safety Education. Lexington, KY.

National Association of State Boating Law Administrators. Reference Guide to State Boating Laws

National Safe Boating Council. Basic Boating Sample Lesson Plan Program Guidelines. Delaware, OH.

National Transportation Safety Board. Safety Study - Personal Watercraft Safety. NTSB/SS-98/01. Washington, D.C.

National Transportation Safety Board. (1993). Safety Study - Recreational Boating Safety. NTSB/SS-93/01. Washington, D.C.

U.S Coast Guard Auxiliary. (1996). Skipper's Safe Boating Course. Mosby Lifeline: St. Louis, MO.

U.S Coast Guard Auxiliary. (1997). Boating Safety. Mosby Lifeline: St. Louis, MO.

U. S. Coast Guard & National Recreation and Park Association. (1995). Boating Fundamentals: A Manual for Safe Boating. Arlington, VA.

U.S.D.O.T. United States Coast Guard. (1990). Navigation Rules: International – Inland (COMDTINST M16672.2B). U. S. Government Printing Office: Washington, D. C.

U.S.D.O.T United States Coast Guard. (1994). Federal Requirements and Safety Tips for Recreational Boats. U. S. Government Printing Office: Washington, D. C.

U.S.D.O.T. United States Coast Guard. (1997). Boating Statistics - 1997. Preliminary Draft. Washington, D.C.

U.S.D.O.T. United States Coast Guard. (1996). Boating Statistics - 1996. COMDTPUB P16754.10. Washington, D.C.

U.S.D.O.T. United States Coast Guard. (1995). Boating Statistics - 1995. COMDTPUB P16754.9. Washington, D.C.

U.S.D.O.T. United States Coast Guard. (1994). Boating Statistics - 1994. COMDTPUB P16754.8. Washington, D.C.

United States Power Squadrons. (1997). The Squadron Boating Course. Raleigh, NC.

United States Power Squadrons. (1997). Boat Smart. Raleigh, NC.

Underwriters Laboratories Inc. (1998). Recreational Boat Manufacturing Compliance Workshop Report. Research Triangle Park, NC.

Appendix 6

Estimated Cost for Mandatory Boat Operator Education

The information contained in this appendix includes the following:

- Washington Budget Developed by Using Oregon Budget for Mandatory Education Program
- Estimates of Revenue for Charges from $10 per Certificate to $15 per Certificate
- Description of Estimated Cost for Staffing, Supplies and Equipment, Publicity and Publications
- Estimated Revenue

Washington Budget Developed by Using Oregon Budget for Mandatory Education Program

Oregon	Washington	Oregon	WA	Difference	Oregon
Staff		01	05		01-03
Prog Rep 1	Program Coordinator	39,562	50,100	10,538	85,028
PSR 3	Office Assistant	15,068	34,200	19,132	62,576
Data Processor	Data Entry Operator	13,035	31,100	18,065	54,093
	IT Applications Specialist 4		70,700	70,700	
Total		67,665[18]	186,100	118,435	201,697
Indirect 25%			46,525	46,525	
Total Staff			232,625	164,960	
Service & Supplies					
Travel	Travel	1,780	4,000	2,220	3,560
Office Supplies & Expenses	Office Supplies	2,000	7,000	5,000	5,400
Printers & Postage	Cost of Mailing Approx $.50 ea	5,304	20,000	14,696	12,588
Telecommunication	hook up to state printer	2,675	5,000	2,325	2,160
Telecomm Auto Attendant	May not apply to Washington	800	-		8,544
Employee Training	Training on software and other training	500	9,000	8,500	3,750
Prof Services - Emp Asst	Does not apply to Washington	16	-		72
Temp Services	Not budgeted at this time	9,454	-		56,554
Data Process	Calculated in IT Tech above	1,019	-		7,133
Office Rent	Calculated in indirect above	13,010	-		10,092
$250-$5,000 Prop (Emp)	Equipment/workstations for staff	11,400	31,000	19,600	5,000
Publications and Publicity					
Educational Materials	Course Manuals		5,000	5,000	12,000
Blank Operator Cards	Cards @ $.20 ea	2,019	8,000	5,981	1,600
Counter Cards (Yr 1 Press releases)	Does not apply to Washington	800			2,500
Application Forms	Printing Costs In Office Supplies	1,419	-		3,000
	Radio/Newspaper ads		30,000	30,000	
Volunteer Program	Does not apply to Washington		-	-	10,000
Instructor Training	Does not apply to Washington		-	-	12,000
Publication Course	Does not apply to Washington	4,115	-		6,000
Contingency - 3% of total			-	-	10,726
Subtotals		56,311	119,000		172,679
Contingency - 3% of total			10,549	(45,762)	
Totals			129,549	47,560	
Capital Outlay [19]					
Telecom Auto Attendant	Scanner, Card printer, software, etc.	20,000	30,200	10,200	12,813
Software Upgrade/Programming	SQL server, Peripherals, Software- Database	30,000	50,000	20,000	3,085
	Computer/software maintenance		12,000	12,000	
Total	DIS Space rental & other maintenance	50,000	92,200	42,200	15,898
Total Program Cost:		173,976	454,374	280,398	390,274
Cost of Computer staff FTE and Indirect $234,450			(234,450)		
Actual Difference			219,924	45,948	

[18] Amounts are for a partial year as staff was gradually hired into the Oregon Program

[19] Costs are still being explored for Capitol Outlay and may differ substantially from these figures as of this printing

Appendix 6

Washington Budget Developed by Using Oregon Budget for Mandatory Education Program

WA	Oregon	WA	Oregon	WA	Oregon	Washington
05-07	**03-05**	**07-09**	**05-07**	**09-11**	Staff	
100,200	92,591	100,200	101,005	100,200	Prog Rep 1	Program Coordinator
68,400	67,576	68,400	73,420	68,400	PSR 3	Office Assistant
62,200	58,100	62,200	62,897	62,200	Data Processor	Data Entry Operator
141,400		141,400		141,400		IT Applications Specialist 4
372,200	218,267	372,200	237,322	372,200		
93,050		93,050		93,050		
465,250		465,250		465,250		
					Service & Supplies	
8,000	3,000	8,000	3,000	8,000	Travel	Travel
14,000	5,400	14,000	5,400	14,000	Office Supplies & Expenses	Office Supplies
40,000	16,616	40,000	24,644	40,000	Printers & Postage	Cost of Mailing Approx $.50 ea
5,000	2,160	5,000	2,160	5,000	Telecommunication	hook up to state printer
	8,544		8,544		Telecomm Auto Attendant	May not apply to Washington
12,000	4,000	12,000	4,000	12,000	Employee Training	Training on software and other training
	72		72		Prof Services - Emp Asst	Does not apply to Washington
	56,554		56,554		Temp Services	Not budgeted at this time
	7,133		7,133		Data Process	Calculated in IT Tech above
	28,866		30,695		Office Rent	Calculated in indirect above
				15,000	$250-$5,000 Prop (Emp)	Equipment/workstations for staff
					Publ/Publ	
10,000	12,000	10,000	24,000	10,000	Educational Materials	Course Manuals
16,000	1,600	16,000	1,600	16,000	Blank Operator Cards	Cards @ $.20 ea
					Counter Cards (Yr 1 Press releases)	Does not apply to Washington
	3,000		6,000		Application Forms	Printing Costs In Office Supplies
60,000		60,000		60,000		Radio/Newspaper ads
	10,000		10,000		Volunteer Program	Does not apply to Washington
	12,000		12,000		Instructor Training	Does not apply to Washington
	12,000		12,000		Publication Course	Does not apply to Washington
	14,824		16,665		Contingency - 3% of total	
165,000	197,769	165,000	224,467	180,000	Subtotals	
18,908		18,908		19,358	Contingency - 3% of total	
183,908		183,908		199,358	Totals	
					Capital Outlay[19]	
				20,000	Telecom Auto Attendant	Scanner, Card printer, software, etc.
				30,000	Software Upgrade/Programming	SQL server, Peripherals, Software- Database
30,000		30,000		10,000		Computer/software maintenance
30,000		30,000		60,000	Total DIS Space rental & other maintenance	
679,158	416,036	679,158	461,789	724,608	Total Program Cost:	
(234,450)		(234,450)		(234,450)		
444,708	54,434	444,708	28,672	490,158		

[19] Costs are still being explored for Capitol Outlay and may differ substantially from these figures as of this printing

Recreational Boating Safety in Washington

Estimates of Revenue for Charges from $10 per Certificate to $15 per Certificate

Oregon	Washington	Oregon	WA	Difference	Oregon
Revenues $ 10 per Certificate					
$10 Certificate	40,000 requests per year/ years 1, 2 & 3, 30,000 thereafter	184,690	400,000	215,310	384,660
$ 5 Duplicate	5,000 year 3 & 4, 10,000 each year after				3,515
$ 4 Course	Does not apply to WA	408			6,858
Totals		185,098	400,000	214,902	395,033
Difference between expected expenditures and estimated revenue			(54,374)		
Revenue $11 per Certifiate					
$11 Certificate	40,000 requests per year/ years 1, 2 & 3, 30,000 thereafter		440,000		
$5 Duplicate	5,000 year 3 & 4, 10,000 each year after				
Total			440,000		
Difference between expected expenditures and estimated revenue			(14,374)		
Revenue $12 per Certifiate					
$12 Certificate	40,000 requests per year/ years 1, 2 & 3, 30,000 thereafter		480,000		
$6 Duplicate	5,000 year 3 & 4, 10,000 each year after				
Total			480,000		
Difference between expected expenditures and estimated revenue			25,626		
Revenue $13 per Certifiate					
$13 Certificate	40,000 requests per year/ years 1, 2 & 3, 30,000 thereafter		520,000		
$6 Duplicate	5,000 year 3 & 4, 10,000 each year after				
Total			520,000		
Difference between expected expenditures and estimated revenue			65,626		
Revenue $14 per Certifiate					
$14 Certificate	40,000 requests per year/ years 1, 2 & 3, 30,000 thereafter		560,000		
$7 Duplicate	5,000 year 3 & 4, 10,000 each year after				
Total			560,000		
Difference between expected expenditures and estimated revenue			105,626		
Revenue $15 per Certifiate					
$15 Certificate	40,000 requests per year/ years 1, 2 & 3, 30,000 thereafter		600,000		
$7 Duplicate	5,000 year 3 & 4, 10,000 each year after				
Total			600,000		
Difference between expected expenditures and estimated revenue			145,626		

Appendix 6

Estimates of Revenue for Charges from $10 per Certificate to $15 per Certificate

WA	Oregon	WA	Oregon	WA	Oregon	Washington
					Revenues $ 10 per Certificate	
600,000	474,740	600,000	704,110	600,000	$10 Certificate	40,000 requests per year...
25,000	7,035	50,000	10,550	50,000	$ 5 Duplicate	5,000 year 3 & 4, 10,000...
	9,729		13,980		$ 4 Course	Does not apply to WA
625,000	491,504	650,000	728,640	650,000	Totals	
(79,158)		(79,158)		(124,608)	Difference between expected expenditures and estimated revenue	
					Revenue $11 per Certifiate	
660,000		660,000		660,000	$11 Certificate	40,000 requests per year...
25,000		25,000		25,000	$5 Duplicate	5,000 year 3 & 4, 10,000...
685,000		685,000		685,000	Total	
5,843		5,843		(39,608)	Difference between expected expenditures and estimated revenue	
					Revenue $12 per Certifiate	
960,000		720,000		720,000	$12 Certificate	40,000 requests per year...
30,000		120,000		120,000	$6 Duplicate	5,000 year 3 & 4, 10,000...
990,000		840,000		840,000	Total	
310,843		160,843		115,393	Difference between expected expenditures and estimated revenue	
					Revenue $13 per Certifiate	
1,040,000		780,000		780,000	$13 Certificate	40,000 requests per year...
30,000		120,000		120,000	$6 Duplicate	5,000 year 3 & 4, 10,000...
1,070,000		900,000		900,000	Total	
390,843		220,843		175,393	Difference between expected expenditures and estimated revenue	
					Revenue $14 per Certifiate	
1,120,000		840,000		840,000	$14 Certificate	40,000 requests per year...
35,000		70,000		70,000	$7 Duplicate	5,000 year 3 & 4, 10,000...
1,155,000		910,000		910,000	Total	
475,843		230,843		185,393	Difference between expected expenditures and estimated revenue	
					Revenue $15 per Certifiate	
1,200,000		900,000		900,000	$15 Certificate	40,000 requests per year...
35,000		70,000		70,000	$7 Duplicate	5,000 year 3 & 4, 10,000...
1,235,000		970,000		970,000	Total	
555,843		290,843		245,393	Difference between expected expenditures and estimated revenue	

Description of Estimated Cost for Staffing, Supplies and Equipment, Publicity and Publications

Staff

P & RC 1:
State Job Description Consistent with duties needed for this program, supervise statewide outreach, activities of office assistant and data processor, solicit provider organizations, attend meetings of Coast Guard Auxiliary, Power Squadron, etc.

Office Assistant:
May be able to absorb all or most or some or none of these duties with current staff. Receive incoming mail, log in checks, verify information with other agencies organizations, verify information with applicants, answer telephone requests, assist data processing specialist.

Data Processing Specialist:
Assist logging in checks, Input data from applications, verify data as entered, verify output when complete, cooperate with state printer to produce finished certificates.

Information Technology Specialist:
Professional level information technology needs supported by Information Management Section.

Services and Supplies

Travel: Staff travel to meetings of user groups, potential providers, current providers with issues, arrange agreements with media etc.

Office Supplies & Expenses: paper, telephone, printers & ink, general office supplies (pens, pencils, etc.), postage, office copying costs, etc. for 3 people.

Printers & Postage: This cost covers printing card including printing supplies and postage figured at $.50 per card.

Telecommunications: Hook up to state printer for certificates.

Employee Training: Standard, required training for state employees, DOP surcharge and other training for staff.

Equipment for staff: Cost of three workstations and related computers and equipment for 3 persons. Cost for updated equipment in fifth year or sixth year.

Appendix 6

Publicity and Publications

Educational Materials: Manual, Handbook, test, and application materials $1 per applicant.

Operator Certificate Cards: Blank Plastic cards for certificate at $.20 each. The actual cost of printing and mailing the cards is under Services & Supplies.

Advertising: Information to the public about the requirement for mandatory education and how the program works, Radio, Newspaper and possibly television.

Capital Outlay

Scanner, Card printer, software, etc.: Scanner equipment, Card Printer & Related Software. Replacement cost figured in year 5 or 6 of program to allow for wear/new technology.

Server, database software, regular printer and associated hookups and peripherals: Replacement cost figured in year 5 or 6 of program to allow for wear/new technology.

Database maintenance: This includes service calls on equipment, updates and troubleshooting on software. This is the portion that would most likely be done by a private contractor, not in house.

Revenue

It is estimated that approximately 40,000 persons per year will request certification. Based on Oregon's experience

2002 = 262,000 number of registered vessels

Double for number of operators = 524,000.

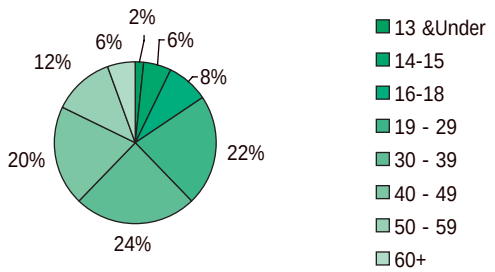
There are many boats that are family boats and have more than 2 operators. Some boats have only one operator.

The doubling is just a way to give us a rough idea of how many boaters will need to be certified at some point.

Recreational Boating Safety in Washington

Operators Age	Percent	
13 &Under	26	0.02
14-15	86	0.06
16-18	127	0.08
19 - 29	346	0.22
30 - 39	379	0.24
40 - 49	308	0.2
50 - 59	187	0.12
60+	88	0.06
Unknown 270	270	

Operator Age as Percent of All Operators



Boater Age

	# Registered	Percent		1	1.5	2
13 &Under	262000	0.02		5,240	7,860	10,480
14-15	262000	0.06		15,720	23,580	31,440
16-18	262000	0.08		20,960	31,440	41,920
19 - 29	262000	0.22		57,640	86,460	115,280
30 - 39	262000	0.24		62,880	94,320	125,760
40 - 49	262000	0.2		52,400	78,600	104,800
50 - 59	262000	0.12		31,440	47,160	62,880
60+	262000	0.06		15,720	23,580	31,440
Totals				262,000	393,000	524,000
29 &Under				99,560	149,340	199,120

Multiple of Number of Registered Boats

Age Groups Compared to Oregon	1	1.5		2
12 to 29	99,560	149,340		199,120
30-39	62,880	94,320		125,760
40-49	52,400	78,600		104,800
50-59	31,440	47,160		62,880
Over 60	15,720	23,580		31,440
Totals	262,000	393,000		524,000

Oregon % of Each Age Group Certified by 2003 Deadline for Boaters 30 & Under from 1999 to April 2003

12-30 years	63.0

Using Oregon's Percentages above to create the Washington Estimate for First 4 Years Moving Toward Implementation Multiples of Number of Registered Boats

		1	1.5	2
12-30 years	0.63	62,770	94,155	125,540
31-40 years	0.25	15,702	23,553	31,403
41-50 years	0.21	10,933	16,400	21,867
51-60 years	0.24	7,566	11,349	15,132
60+	0.23	3,537	5,306	7,074
Totals		100,508	150,762	201,016

Combine Oregon percentages to fit Washington Categories for 60+

Oregon % of Each Age Group Certified by 2003 Deadline for Boaters 30 & Under from 1999 to April 2003

12-30 years	63.0
31-40 years	25.0
41-50 years	20.9
51-60 years	24.1
61-70 years	17.7
71+	27.4

Appendix 6

If Number of Applications is equal each year for the first for years, the number of

applications for the first year would be:	25,127	37,690	50,254
Second two years would be:	50,254	75,381	100,508
The third year would be:	25,127	37,690	50,254
Totals	100,508	150,761	201,016

In talking with Marty Law of the Oregon Marine Board, I learned that they received over 30,000 applications in the first year of program development. Because we have more boats registered than Oregon, Marty suggested that we should anticipate about 40,000 applications a year in the first few years and that consecutive years would be only slightly lower and requests for duplicate certificates began to cycle in.

40,000 is very close to the mid-range (1.5 multiplier) figures based on Oregon percentages above. We calculate 40,000 each year for the first 3 years as the program starts up and before law enforcement begins to look for certificate cards.

Starting in year 4 we drop the demand to 30,000 new applications and 5,000 replacement cards then 10,000 replacement cards in succeeding biennia.

Appendix 7

Mandatory boating safety education program

Recommendations for Language in Law

1. **Mandatory boating safety education program.** The Commission shall establish and implement a program to provide mandatory boating safety education.

2. **Requirements for mandatory boating safety education program for operators of recreational motorized boats; certificate; fee.** In establishing the mandatory boating safety education program pursuant to RCW.___.___, the Commission shall:

   a. Set a minimum standard of boating safety education competency. After July 1, 2004, the standard shall be consistent with the applicable standard established by the National Association of State Boating Law Administrators. The Commission may update the minimum standard of competency as necessary.

   b. Create a boating safety course of instruction and examination from a pool of questions designed to educate and test for the minimum standard of safety.

   c. Provide an equivalency or challenge exam from the question pool that may substitute for taking the boating safety course.

   d. Incorporate volunteer boating safety education program courses especially including those offered by the United States Coast Guard Auxiliary and United States Power Squadrons to the maximum extent possible provided they meet the standard adopted by the Commission.

   e. Encourage use of commercial and not-for-profit provided boating safety education courses provided they meet the standard adopted by the Commission.

   f. Accept proof of completion of any boating safety education course taken prior to July 1, 2004, provided such course meets the standard adopted by the Commission for such time period.

   g. Establish a fee for issuing the boating safety certificate. Such fee shall be limited to covering the actual cost of the mandatory boating safety education program plus up to an additional $3 per certificate issued to be made available by the Commission to local marine law enforcement programs approved by the Commission as provided in RCW 88.02.040.

   h. Establish a fee for replacement of the boating safety certificate. Such fee shall be limited to covering the actual cost of issuing the replacement certificate.

   i. Establish a temporary certificate for a person who has just successfully completed a boating safety course or proctored equivalency exam approved by the Commission.

3. **Operation of motor-driven boats by person 12 to 15 years of age.** A person 12 to 15 years of age with a boating safety certificate may operate a motor-driven boats with an engine of 10 horsepower or greater if accompanied by and under the direct supervision of a parent, guardian, or responsible person (current WAC refers to mentally competent) 16 years of age or older who possesses a boating safety certificate.

4. **Operation of motor-driven boats by person 16 years of age or older.** No person shall operate, or permit the operation of, a motor-driven boats with an engine of 10 horsepower or greater unless the person:

   a. Is at least 16 years of age; and

   b. Obtains a boating safety certificate; or

   c. Is accompanied by and under the direct supervision of a person 16 years of age or older who has obtained a boating safety certificate.

5. **Exemption from requirement to obtain boating safety certificate to operate a motor-driven boats of 10 horsepower or more.** A boating safety certificate is not required if a person:

   a. Is at least 16 years of age and rents or charters a motor-driven boat with an engine 10 horsepower or greater and completes a required dockside safety checklist before operating the motor-driven boat;

   b. Possesses a current commercial fishing license as required by the Washington State Department of Fish and Game RCW___.___;

   c. Possesses a valid marine operator license issued by the United States Coast Guard;

   d. Is a commissioned officer who operates a vessel that is exempted from the vessel registration requirements in RCW 88.02, and adopted administrative codes, and is used for the purposes of law enforcement.

   e. Is not a resident of this state and does not operate a motor-driven boat with an engine 10 horsepower or greater in Washington waters for more than 60 consecutive days;

   f. Is not a resident of this state, holds a NASBLA recognized current out-of-state and or out of country boating safety certificate and has the out-of-state or out of country certificate in the person's possession.

   g. Holds a temporary exemption as described under RCW___.___; (Bill of sale)

   h. Is involved in practicing for, or engaging in, a local, state, or federal government agency permitted racing event where a valid document has been issued by the appropriate agency for the event, and is available for inspection on site during the racing event.

   i. Is not required to have a certificate under the phase-in program developed by the Commission pursuant to RCW___.___. (Like Oregon, probably 4 years before first group needs to have their certificates)

6. **Boating safety certificate or temporary certificate required to operate motor-driven boat.** A person shall carry a permanent or temporary boating safety certificate on the motor-driven boat while operating a motor-driven boat, as required, and shall present the certificate to a law enforcement officer upon request by the law enforcement officer.

7. **Conditional suspension of fine for violation of boating safety requirements.** In any proceeding for a violation of RCW___.___, ___.___, etc the court may consider conditionally suspend all or part of the fine to be imposed on the defendant if the defendant appears personally and agrees to obtain a certificate, at the defendant's own expense, under RCW___.___ within the time limits imposed by the court.

8. **Boating safety certificate account—deposits—appropriations—use.** There is created a boating safety education certification account within the state treasury. Fees from boating safety certificates and replacement of boating safety certificates collected under this (chapter/section) shall be deposited in the boating safety education certification account and shall be appropriated only to the state parks and recreation commission solely for the administration and coordination of this (chapter/section).

9. **The Commission shall phase in the mandatory boating safety education program by 2014.**

10. **The Commission shall adopt rules in accordance with chapter 34.05 RCW as needed to implement this (chapter, section)**


Kismet

Appendix 8

RCW 79A.05.310

Powers and duties — Program of boating safety education — Casualty and accident reporting program.

The state parks and recreation commission shall:

1. Coordinate a statewide program of boating safety education using to the maximum extent possible existing programs offered by the United States power squadron and the United States coast guard auxiliary;

2. Adopt rules in accordance with chapter 34.05 RCW, consistent with United States coast guard regulations, standards, and precedents, as needed for the efficient administration and enforcement of this section;

3. Enter into agreements aiding the administration of this chapter;

4. Adopt and administer a casualty and accident reporting program consistent with United States coast guard regulations;

5. Adopt and enforce recreational boating safety rules, including but not necessarily limited to equipment and navigating requirements, consistent with United States coast guard regulations;

6. Coordinate with local and state agencies the development of biennial plans and programs for the enhancement of boating safety, safety education, and enforcement of safety rules and laws; allocate money appropriated to the commission for these programs as necessary; and accept and administer any public or private grants or federal funds which are obtained for these purposes under chapter 43.88 RCW; and

7. Take additional actions necessary to gain acceptance of a program of boating safety for this state under the federal boating safety act of 1971.